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REDUCING THE EMOTIONAL STRESSES OF HOSPITALIZATION FOR CHILDREN¹

ELIZABETH GELLERT, Ed. D.²

The stress of hospitalization for children is manifested in a number of ways. Children cry, whine, or scream; they cling tenaciously to their parents; they eat or sleep poorly; they struggle against treatments and resist taking medications; they are tense and fearful; they become silent, sad, and withdrawn. They may show an increase in regressive or compulsive behavior; they may become destructive of their environment, or even of themselves. In part, such upset behavior occurs as a response to pain and physical discomfort. A good deal of it, however, is a reaction to stresses that are primarily psychological and the work of Bowlby,¹ Jessner, et al.² and others^{3,4,5,6,7} has called attention to these stresses. Many of them can be avoided or reduced. In order to do this effectively, it is important to be aware of the kinds of hospital experiences that add to the emotional strain of illness.

One cannot list or anticipate, for each and every child, all the events that may upset him. Patients vary in their tolerance for different kinds of stress according to their age, their individual personalities, and according to the way they interpret the experiences they undergo. There are some aspects of hospitalization, however, that are hard to take for a great many children. Several of these will be discussed.

SOME EMOTIONAL STRESSES OF HOSPITALIZATION

Separation from parents and home environment. In the experience of most children, illness usually takes place in the familiar setting of home, close to the reassuring presence of family and friends. In contrast to this, being sick in a hospital frequently involves enduring physical distress and trying procedures in an environment where there is no well-known person to turn to for comfort. Pre-school age children,

particularly those who have not been away from their mothers for prolonged periods previous to hospitalization, often find this separation especially trying. Youngsters may not understand why they are hospitalized or why their parents have to leave them, either because no one has explained it to them, or because they are too young to grasp the explanations they have been given. Many react to their parents' departure as though they had been abandoned forever. They may not wait serenely for tomorrow's visit because their conception of time is still on an immature, "now or never" basis.

Some children have the idea that they have been hospitalized as a punishment for being "bad" or as an act of rejection by their parents.

In general, children find separation and hospitalization easier to take if they have been prepared beforehand, if they feel that they can count on their family in times of need and if their parents convey to them their own confidence in the medical staff. Usually, regular and frequent visits do much to sustain the patients emotionally.

Inadequate support from parents. Sometimes parents do not provide the kind of emotional support their children need when they are hospitalized. There can be many reasons for this. They may live too far from the hospital or they have too many other responsibilities to spend much time or thought on their sick child. Occasionally, one encounters mothers and fathers who seem to care very little about their youngster's welfare. More frequently, a parent's immaturity or some unresolved personal problem

1. This work was supported by a grant from the Grant Foundation.

2. Department of Psychiatry, Massachusetts General Hospital.

interferes with his giving adequate emotional support to his sick child. Relatives may blame themselves for the patient's illness because of their own ambivalent feeling towards him.

Sometimes a child's family comes into conflict with hospital staff. This can be very upsetting for all concerned. Resentment may be aroused by a parent's unrealistic demands, by hostile or condescending behavior towards staff, or by interference with hospital routines and with patient care. Relatives may upset children by being overly solicitous. Some parents find it hard to take a "back seat" while strangers take over the care of their child. Difficulties and misunderstandings can arise if there is inadequate communication between medical staff and the patient's family. An optimum exchange of information between them may be limited by language or cultural barriers. Many parents feel reluctant to bother the busy doctors with questions and concern about their child. The impotence and uncertainty some mothers and fathers feel in a hospital setting may be sensed by their youngster. This may affect his own sense of security. Sympathetic understanding and skillful guidance can do a great deal to help such parents work out a constructive approach to their child's illness and hospitalization.

Spatial and psychological isolation. In our culture, children usually are not accustomed to being alone. To be separated from others for long periods of time is painful and frightening to many of them. Patients, particularly the very young, who have to be separated from others for medical reasons tend to feel anxious and depressed. Children may be so distressed by feeling "shut away" from other people that they go to great lengths to attract attention to their plight, sometimes arousing the impatience of the busy staff.

The feeling of isolation is not confined to patients in single bed units. A child who cannot speak English, whose senses are impaired, who is very shy, or who has been placed among children with whom he has little in common, may feel alone even though he is surrounded by others. Children vary markedly in their ability to arouse affection and support. As a result, one youngster may receive all the attention he needs or more, while the one next to him is passed by, unnoticed.

Isolation can be diminished by grouping children according to age, and by maintaining frequent, friendly contact with them.

Unfamiliar routines, schedules, and procedures. Habitual routines and customary surroundings are important psychological stabilizers in everyday living. This is especially so with respect to the very young and the very old. Being removed

from the support derived from established routines that are carried out in a familiar setting may give rise to feelings of anxiety and of disorientation. When they come to the hospital, children usually find their patterns of living radically disrupted. The hours for waking and sleeping, the meals they are served, washing and toileting routines, the bed and bedclothes they use, their own activities, the place and the people in it are much different from those they are accustomed to. If they have to be taken to another part of the building for X-rays or treatments, they may have no understanding about where they are going, or when and whether they will return. Sometimes children are afraid that their parents will not find them if they leave their room. To a child, a hospital is like a foreign country to whose customs, language, and schedules he must learn to adapt. This is difficult to do where there are many and often abrupt changes in medical regime or in care-taking personnel, or where there is inconsistency in a patient's management. It is hard to "settle in" under such conditions. Sudden changes in procedures or in staff cannot always be avoided. But in many instances, a little preparation ahead of time can ease considerably the stresses of transitions in the course of a patient's hospital stay.

Physical constraint. It is characteristic of children that they discharge tension primarily through motion behavior. Our society usually permits, even encourages, much freedom of motion in its young. Infants are rarely swaddled, and older children of both sexes engage in vigorous sports and play. When they are confined to bed, pediatric patients are deprived of the freedom of movement to which they are accustomed. If they are in restraints, traction or casts, they have to stay in one position for hours or days at a time. Small children cannot understand the reason for such immobilization, and rarely submit to it without protest. Older ones have more tolerance for temporary limitations but they, too, become restless and distraught if they have to be inactive for long periods of time. Provisions need to be made for keeping physical immobilization during hospitalization at a minimum. Where constraint cannot be avoided, the patient should be helped to find activities that can be adapted to his limited motility.

Enforced dependency. The process of growing up is a long series of steps towards increasing independence from parents and other caretakers. This progression from the gratifications and frustrations of infancy to the triumphant but demanding autonomy of maturity is accompanied by mixed feelings. Youngsters are proud when

they act "grown up," but they are also tempted to remain infantile in their behavior. At each stage of development, mastery over earlier, less mature levels is precarious, and there is fear of slipping back to younger ways. This is especially true during adolescence.

Illness often forces increased dependence and passivity upon children at a time when they are struggling towards adulthood. If they are confined to bed, they are treated like infants in many ways. They are no longer responsible for caring for their bodies, and they have to depend upon others for their daily needs. In some children, such enforced dependency reinforces the wish-fear of slipping back, or regressing to previous stages of development. Regressive behavior often occurs as a normal response to stress. However, by some it is perceived as a threat to their level of maturity. This contributes to the anxiety their illness induces in them. Many patients benefit from being given opportunities to exercise their attained levels of functioning by helping to care for themselves and for others, and by engaging in constructive activities.

Sometimes the dependence enforced by illness arouses fear in a child that he will come to grief because strangers will not care for him adequately. For such a patient, hospitalization can be a particularly stressful experience. He may require repeated reassurance, by word and deed, that his needs will be attended to, and that his environment is friendly towards him.

Shame and embarrassment. In a hospital, the patient's customary privacy is invaded in many ways. His body is exposed for examinations, treatments, and care; toileting is often attended to within sight of others; a great deal of attention is given to organic functions which are usually "unmentionable." In addition to such unaccustomed exposures of the body, patients sometimes display their emotions in ways that are different from their usual public behavior. This can be quite a blow to their self-esteem. Young people are often acutely embarrassed when their bodies or their feelings are exposed, or when others talk about them in their presence. If they have a physical handicap, or if their appearance is felt to be very different from that of their peers, they may become self-conscious, shy and withdrawn because they cannot tolerate being looked at. Sensitivity to the patient's feelings about being exposed—either physically or emotionally—can protect him from experiencing avoidable distress.

Fear, misunderstandings, and ignorance. It is surprising how often children are confused or totally ignorant about the nature of their illness

and the reason for their hospitalization. As an example, a child who was brought into the hospital for a tonsillectomy was asked where her tonsils were. She pointed to her abdomen.⁴ Youngsters may have distorted and frightening ideas about what made them sick, and about what is being done to them. These ideas often stem from private fantasies. They may be reinforced by misinterpretations of what parents and doctors say to them, or about them. Apprehensions may arise, also, from witnessing the distress of other patients. The unfamiliar instruments and machines used in the hospital can stimulate a variety of fears and fancies if their purpose is not understood. For this reason, procedures such as injections, laboratory tests, enemas and X-rays should be explained briefly before they are done, and reassurance should be given to those children who are upset by them. Frequently, illness is accompanied by unusual sensations such as dizziness, nausea, delirium or dyspnea. Some drugs induce unaccustomed feeling states. These may frighten patients who notice that they feel and behave differently from their "usual selves."

Explanations and reassurance are particularly important if surgery is to be done. Many children are afraid that they will be annihilated or that their bodies will be irreparably damaged during an operation. The actual loss of body parts or of bodily functions requires long periods of emotional readjustment and, often, special help. Among the procedures and treatments that need to be interpreted are: sedation, anesthesia, the administration of oxygen, the use of drainage tubes, catheterization, intravenous feedings, transfusions and stitches. (Many children worry about what it will be like to have their stitches taken out.) Thoughtful explanations, when they are given at his level of understanding, can help the patient master the concern he may feel about his condition and about what has been done to him.

Inappropriate attitudes and inadequate skill in working with children. When staff members are not trained to recognize signs of emotional upset, they may not avert serious disturbances in time. When they use inadequate techniques in working with children, they may distress them or antagonize them unnecessarily. If they do not know how to elicit trust and cooperation, their relationship with their patients may be frustrating and upsetting for all concerned. Staff members need to know how to recognize and encourage a child's healthy attempts to cope with stress. Some behavior of children can arouse strongly "charged" reactions in adults. If they cannot cope with such reactions, these may

interfere with the workers' effectiveness in caring for their patients. The increasing proportion of children who are hospitalized for psychiatric or psychosomatic conditions puts added pressure upon the pediatric staff to develop further sophistication in dealing with the emotional aspects of illness.

Some hospitals have introduced in-service education programs designed to increase the staff's understanding and skill in working with children. Such programs can be an important asset, particularly if teaching is extended to include most of the personnel closely associated with the care of pediatric patients.

First impressions make a difference. The impression that is gained by the patient and his family when he is admitted to the hospital can set the stage for his entire stay. It is important that they be received promptly, and with friendly courtesy. They will appreciate it if they are made comfortable while they wait for the doctor to see them.

The appearance and general atmosphere of the hospital contribute to the over-all impression that is gained. The pediatric unit should have a pleasant, informal air about it. Wherever possible, rooms and hallways should be decorated colorfully in a way that appeals to children. Beds and partitions should be arranged to permit maximal view and social interaction, as well as providing necessary privacy. There should be space and facilities for play and recreation.

The staff member who admits the patient can be most helpful by orienting him and his family with regard to hospital policies and routines that concern them. She can also obtain relevant, personal information about the patient. It is a good idea to find out by what name he is usually called. Many children use nicknames or names that are not on their record. Information regarding daily habits such as eating, sleeping, toileting and preferred play activities should also be sought. In the case of pre-school age children, it is important to know to what extent they are weaned and toilet trained, and what words they use to refer to bowel movements and to urination. The intelligent use of such personal data can help the child to bridge the gap between life at home and life at the hospital.

Policies and practices with regard to parents. Many parents appreciate guidance in preparing their child for hospitalization. A number of pamphlets have been written with this purpose in mind. Most of these have been reviewed in the Winter, 1956-57, issue of the periodical, *Child Study*. Some hospitals distribute their own written material offering pertinent information and

suggestions to the child and his family. The orientation of parents should include the following points:

1. Whenever possible, children should be told that they will be going to the hospital at least a few days prior to admission. At the pre-school age, about two days' advance notice is probably adequate. Parents or physicians should tell the patient something of what the hospital will be like, of the reason for his being there, and of his expected length of stay (where this is known).

2. Frequent visiting is important, even when children seem to pay little attention to their visitors, or when they "act up" during the parents' visit. Parents should be informed about schedules and regulations concerning visiting.

3. Many young children derive much comfort from a favorite plaything they have brought with them from home.

4. When leaving, parents should never depart without letting their child know about it. If he is old enough to understand this, it is a good idea to tell the child when to expect the next visit.

5. Parting can be eased if parents bring a small "surprise" present that is to be opened *after* they have gone.

6. Parents need to know whether it is all right to take their child out of bed, to touch him and to move him. Many of them are uncertain about this when they visit their sick child.

7. Information about auxiliary services and facilities should be provided. These may include social, psychiatric and religious services, rooming-in facilities, near-by stores, eating places and recreation programs for the children.

It should be the explicit policy of every pediatric service to encourage the maintenance of contact between the child and his family. There should be daily, liberal visiting hours. Parents should be made to feel welcome and needed, and that they are not in the way. Many of them appreciate the opportunity to participate in the care of their hospitalized child. Where rooming-in facilities are available, it is often helpful if mother or father stay with the child, at least during the first few nights, particularly if the patient is of pre-school age.

If it is impossible for a member of the child's family to visit him regularly, his hospitalization will be a less lonely experience if he can make a personal relationship with a friendly staff person or with a volunteer who can spend some time with him every day.

Children and parents benefit from a personal approach. Perhaps the most crucial determinant of a child's adjustment to hospitalization is the quality of his relationship with the staff. Although this relationship is influenced, in part, by factors the staff members cannot control, their attitudes can be of great importance. It takes time to demonstrate a personal interest in each and every patient, but this is time well invested. If the children are given opportunities to talk and interact informally with the staff members, they will come to know them as enjoyable, sympathetic individuals, and they will want to co-

operate with them. There are many ways to elicit compliance from children. Some of them are more desirable than others. Threats, shaming and bribery are inappropriate in a pediatric setting. The use of firmness, patience, ingenuity and encouragement is usually more conducive to the patient's well-being, and more effective in the long run.

Many children need help and consideration in managing their feelings. It is important to avoid discussing youngsters in their presence as though they could not hear. Some become upset when they are examined by a group of strange physicians, as often happens on ward rounds. Many pediatricians make it a practice to speak to each patient about the plans that are being made for him, and about his progress, when they visit him on rounds. Such consideration reassures the child that his personality and his concerns are being taken into account.

Even under the best of conditions, some children are overwhelmed by the emotions hospitalization stirs up. The pediatric staff needs to be sensitive to the variety of "distress signals" that indicate that a patient is finding it difficult to maintain emotional control. Wherever possible, steps should be taken to give such a child special help. If he becomes markedly withdrawn or regressed, he should be given a good deal of individual attention. If he seems especially upset by the distress of other patients, he should be protected from witnessing it; anxious patients may need frequent reassurance. If their agitation persists in spite of this, sedation or tranquilizing drugs can bring considerable relief. Children who cannot express their negative feelings in ways that are socially acceptable may need skilled guidance. It is important to provide appropriate outlets for the frustration, the anger and the anxiety that can be aroused during hospitalization. It is equally important to know how to "put the lid" on the expression of such feelings when they threaten to overwhelm the patient.

Recreation, education, and rehabilitation. Hospitalized children should be encouraged to live as normally as possible. They should be allowed the maximum motility that is consistent with their proper care. Most pediatric patients are not too sick to engage in some activities and in social interaction. An increasing number of hospitals are instituting play programs in order to provide for the recreation needs of pediatric patients. If they are well planned, such programs can offer appropriate outlets for tension. They can break down isolation and offset the unpleasant aspects of hospitalization by presenting opportunities for enjoyable and constructive activities. Nursing personnel, occupational ther-

apists and physical therapists can help children maintain or regain capacity to care for themselves. Teachers can see that they continue their studies. These are important aids in nurturing the emotional well-being of children who are hospitalized.

Interstaff relationships. The beneficial consequences of effective collaboration on the part of hospital personnel are apparent. Stanton and Schwartz² have described some adverse effects upon patients of the absence of such collaboration, and of the existence of interpersonal tensions between staff members. If the pediatric personnel functions as a well-integrated team, observations and planning can be pooled and communicated. As a result, patients receive better care and they are protected from inconsistencies and unwelcome surprises in the management of their hospitalization.

SUMMARY

Some common sources of the emotional stresses attending hospitalization have been discussed. Ways have been indicated to deal effectively with these stresses, and to reduce them wherever possible. The objectives set forth in this paper have been presented with the realization that it is not always possible to attain them. Limitations in trained staff, time, and finances, as well as administrative obstacles often stand in the way. The impressive progress that has been made in providing optimum conditions for the physical care of patients suggests, however, that the care of their emotional well-being will become increasingly effective as well.

It is not possible to cite all the individuals who have contributed their ideas and suggestions to this paper, but the author is particularly indebted to members of the psychiatric service, the children's medical service, and the nursing service of Massachusetts General Hospital.

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THE VISUAL-MOTOR FUNCTION

A. JEAN AYRES, O.T.R.¹

It is commonly claimed that engaging in purposeful manual activity increases eye-hand coordination. Although few may doubt the premise, literature provides little theoretical foundation for understanding the process. It is the purpose of this paper to utilize literature and personal experience as a basis for theorizing regarding understanding and training in visual-motor performance of the upper extremities where pathology in this area exists.

Vision, as used in this paper, refers to visual perception. Motor performance refers to purposeful hand usage which is normally coordinated with visual perception. Difficulty in the visual-motor function is irrespective of upper or lower motor neuron disorder. It is not unlikely, however, that upper motor neuron lesions would be concomitant with pathology in visual-motor function. In neurological terms, this paper deals with an understanding of visual agnosia (loss of perception) and upper extremity apraxia (inability to make skilled purposeful movements.)

Perception refers to the use made of sensations rather than to the raw sensations in themselves. The prior receiving and recording of sensory stimuli is obviously required, but perception is a function of afferent neural interaction for the purpose of interpreting and organizing sensory stimuli for insight and use.

Limitations in visual-motor performance are generally not obvious and frequently not easily detected. Therapists may be confronted with such difficulty in a patient when treating more evident neurological conditions. Data have been collected^{1,5,6,7,13,15} which indicate that most patients with any type of brain injury (including cerebral palsy) can be expected to be below normal in some areas of visual-motor performance.

THE PERCEPTUAL PROCESS

The perceptual process is concerned with the sources of sensation and how those sensations are integrated for use.

Sources of Sensation

The sources of sensation are primarily the visual field which is projected on the retina of the eye, the proprioceptive impulses arising from the intrinsic muscles of the eyes, and the sensations of touch and proprioception arising from manual manipulation. The latter become associated with and strengthen the interpretation of the visual stimuli. Likewise, the visual stimuli are essential for interpretation of the stimuli arising from manual manipulation.

Sensations from the Visual Field

In order for an object to be seen, its image must be projected on the retina and the resultant impulses transferred to the visual cortex. The projection reflects the differences; namely, relative brightness, clearness and color. Various arrangements and intensity of these qualities define edges of objects, reflect texture of surface, distinguish figure from background, and provide perspective effects. The relationship of stimuli on the retina contribute to the perception of form and space. For example, the size of the retinal image is a large determinant of distance perception. One object in front of another provides stimuli which are interpreted as relative distance from the viewer. The clearer and sharper the contrast in colors, the closer the object is usually assumed to be. Larger objects appear closer and, even within hand reach, the converging lines of perspective contribute to the perception of space.

A factor in perception of the three dimensions is the retinal disparity of binocular vision. The image received by the right eye is different from the image received by the left. Sensations from peripheral vision also contribute to the concept of space.

The Steps Involved in Visual Perception

Although there is no conclusive evidence to support the supposition, there is considerable data demonstrating that much of the perceptual process is learned. Analysis of the learning process provides a basis for training procedures.

Basic unity. The major exception of the hypothesis that perception is learned is found in the apparently inherent human ability to recognize what is called "primitive" or "basic unity."⁹ This simple perceptual process refers to the recognition of a form or object as simply existing and being separate or different from what is not part of it. It is probably a function of the contrast of luminosity projected on the retina. Such perception, while unified, is still amorphous and is possibly primarily a sensorial function. No identity is implied in the perception of "basic unity." These suppositions account for the fact that color, which is amorphous, is usually more easily learned than form.

Foreground and background. The second step in the development of perception (and perhaps

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the first learned one) is the distinction of foreground and background. The difference in luminosity which aids in distinction of basic unity is not necessarily present to help in differentiating figure and ground. The areas of the brain often referred to as association areas must organize the stimuli into a group so that a single, simple response may be made into a complex pattern. In a figure-ground relationship, the figure (as opposed to the ground) is seen as having shape which is determined by the edges or boundaries. The figure tends to stand out from the ground. The background, as a rule, is seen as being less well defined and often as not having definite edges. The more amorphous the figure and ground, the easier it is to distinguish them.¹³ As the foreground and background become patterned with detail, as they almost invariably are in life's experience, the perceptual demands increase. Perception of foreground and background is not constant. As attention and focus of the eyes shift, that which is the center of attention becomes the foreground while the surrounding area becomes the background.

Recognition of form. After the figure or object is distinguished from its background, the next step is its recognition as a form. Recognition implies some ability to identify, an aspect of perception which will receive elaboration later.

When congenitally blinded are surgically enabled to see, they have little trouble in remembering color, but most have trouble remembering simple figures.⁹ They are soon able to recognize differences in shapes (such as circle and square) when the two are held together, but a long learning process is required before a square is recognized as a square. For considerable time the number of corners and sides must be counted, even as present readers might find it necessary to count the sides of an octagon to confirm a perception. After a square is recognized as such, if it is shown under a different colored light to the newly sighted, it is often not recognized. Recognition of form is a complicated process.

Concept formation. After forms or objects are recognized individually, they are next recognized as belonging to a certain category. Ability to generalize is required for this step, and it is generally termed concept formation. After concepts have been established, a new form in a given category will be recognized as belonging to a certain category because of general features. A picture of a cat never before seen, for example, will be recognized as a cat.

General Neurophysiology of Perception

If it were possible to determine precisely the exact neurophysiology of organization of raw stimuli into meaningful visual perceptions, the establishment of training procedures would be greatly simplified. Since that is not possible at this time, the theories of the process will be examined.

One of the major contributors to this field has been Hebb,⁹ who proposes that the repeated stimulation of specific receptors will gradually cause the nerve cells of the association area of the brain to form an "assembly." The cell-assembly can perpetuate synaptic action through reverberation for a short time after cessation of the stimuli. The period of activity, if sufficiently long, will bring about structural changes in the form of an anatomical growth (synaptic knob) on the nerve cell. The anatomical change facilitates future synaptic activity and is overtly manifested as learning of the simplest kind, as of a single image or idea. In more common neurological terminology, the cell-assembly could be considered an engram. If two different cell-assemblies are repeatedly active at the same time, they will tend to become associated, so that activity in one facilitates activity in another.

Cell-assemblies are available for interconnections throughout most of the association areas of the brain. A certain amount of equipotentiality in this area of the nervous system is inferred. Cell-assemblies grow with perceptual development through the process of recruitment. The period of integration (learning) of an individual perception is quite prolonged and difficult. Integration takes place before association with anything else is possible. The association between two perceptions is possible only after each has been slowly and carefully organized or integrated. The view of an object from one direction may constitute one cell-assembly and the view from another angle another cell-assembly. If these become associated, arousing one assembly will then arouse the other, even though the second view is not projected on the retina.

Arousing the cell-assembly through association only is a conceptual process, and conceptual processes are not directly controlled by sensory processes.⁹ What is known about sweaters as a concept influences behavior when a new sweater, never before seen, is tried on.

When several cell-assemblies are active at the same time, the integration of the activity into something greater than the sum of the parts is dependent upon what Hebb describes as action of a superordinate system, which might be thought of as an organizing engram. Superordi-

nate integration is necessary for perceiving the whole from the parts. Integration is suprasensory and, while initiated by a unilateral sensory event, takes place in both hemispheres. Both hemispheres, then, facilitate the same response. Perception of a whole involves activity of both the cell-assemblies and the superordinate structure (simple and organizing engrams). For example, in seeing a whole we alternate between seeing a part (cell-assembly action), then its relation to the whole (superordinate structure activity), then another part, and so on. The nature of activity in a superordinate structure is determined by the repeated activity in the earlier-developed subordinate structures. The back and forth interaction of cell-assemblies and superordinate structures also occurs in thinking. Attention alternates between specific and concepts. Previously built superordinate structures are activated by only a few cell-assemblies. Superordinate structures are essential to concept formation and to categorizing of learning. They are also responsible for both afferent and efferent integration with the motor input and output.⁹

Strauss and Kephart¹³ have likewise stressed the role of previously established patterns of response and the building on them of new patterns dependent upon new experiences.

Factors Involved in the Organization of Stimuli

Organization of Proprioceptive and Tactual Stimuli. While the contribution of visual impulses to visual motor performance is great, these are certainly not the only sensory stimuli which are organized into perceptions as bases for skilled upper extremity motor performance. The importance of manual manipulation in developing perception of form and space has been observed by Gesell and his associates⁸ and Strauss and Kephart.¹³ As the hand feels the surface of a block, the feeling of space is conveyed through proprioceptive and cutaneous impulses resulting from position, movement and contact. The reaching involved in manual play lays the foundation for depth perception. Visual impressions reinforce and become associated with the manual impressions so that later visual cues can recall the cutaneous and proprioceptive, and the latter can recall the visual. It seems quite probable that the early development of the visual perception of space is largely dependent upon the proprioceptive perception of space. Head movement also contributes impulses which are integrated into the perception of form and space.

Bender² believes that the perception of form in children is the outgrowth of motion. Often motion (such as scribbling with a pencil) appears first and the perception of the result of the motion follows. Gesell⁸ has observed that the

child's ocular-prehensory powers must be learned and that the eyes are intimately connected with all of the neuromotor system. Much of the purposeful movement of the hands becomes so because the eyes have observed and directed it as such. If a block is thrown to a certain corner of the room, vision verifies that a certain proprioceptive and tactual pattern, when activated, will bring about a specific spatial relationship. A similar process takes place for all activity, thus establishing meaningful associations between the visual and motor aspects of performance. The eye-hand combination has been so influential in ontogenetic development that Gesell has referred to the eye as functioning as a prehensory and manipulatory organ. He refers to the combination as "oculomanual prehensory apparatus."

In the early stages of development sensations arising from motor activity play an even greater learning role than later on in childhood when the visual accompaniments of the stimuli are largely sufficient for learning of either visual or motor tasks.

Active movement provides the individual with knowledge of his physical self, how it is related, and how it can deal with space (body scheme). Accurate grasp of the body scheme is necessary before the body can be expected to deal with space. Motion enables the body to learn the most about its relation to space, for motion elicits the greatest number of proprioceptive impulses. Sensations arising from receptors associated with the bone and skin as well as vision of the physical self also contribute to knowledge of the body scheme. Bender³ has provided excellent material on the manifestation of failure to perceive the body scheme.

Proprioceptive impulses arise from eye movement in relation to tri-dimensional space. As the focus of the eye shifts from near to far objects, the eyes must accommodate (for sharpness of focus) and must also diverge (to create one image only).

Contribution of the eye musculature to two dimension form perception is less obvious. The importance of this factor has been stressed by Hebb.⁶ Each object is seen by the eyes' focus on successive parts of the whole. Perception of a form thus becomes an additive process of proprioceptive impulses, with the motor cortex helping to integrate the sensation into perception. When visualizing an object, the performance consists, usually, of "seeing" the parts in succession, moving or imagining the movement of the eyes which would accompany actual observation of the object. Although oculo-motor action may frequently be subliminal, its role is essential in any perception. Strauss and Kephart¹³

called this process "scanning." Integrating the part into the whole is transforming from the temporal order to the spatial order. Revisualizing, then, is transforming from temporal order back to spatial order.¹³

Inability to receive and utilize proprioceptive impulses from the eye musculature would, in all likelihood, severely impair visual perception.

Time as a factor in perception. Time plays a part in the perceptual process. This can be demonstrated by showing a picture for a fraction of a second. Although the picture may have been "seen," the time of exposure may not have been sufficiently long for perception. A certain amount of time is a requisite to visual perception. The amount varies with the perceptual ability and type of visual image. It may well be that the ability to temporarily organize stimuli is fundamental to proprioceptive and visual perception.

Relativity. The brain perceives relative conditions more easily than it perceives absolute conditions. Recognition of a square as being larger than another is easier than recognition of its size by inches. Relative sizes and shapes (bigger-smaller, fatter-thinner, longer-shorter), relative positions (over-under, in front of-behind, above-below, inside-outside, toward-away), and relative directions (right-left, up-down, toward-away) constitute essential elements of perception of likenesses and differences.

The Gestalt function. The Gestalt function refers to the perception of a pattern or an object as a whole. A triangle is not normally seen as three separate lines drawn in certain directions but as a whole and complete figure. If a part of the triangle is missing, the tendency toward closure enables the figure to be seen as a triangle.

Probably, perception of the whole is a process which originally consisted of perception of the parts, one at a time, and organization of the parts into a meaningful whole. The process becomes so rapid and efficient that ultimately it appears to be a direct process. The brain tends to organize stimuli into some larger unit. If organization does not take place, details rather than the form as a whole is seen, indicating a lack in the Gestalt function.

The whole is often considered more than the parts in that it contributes something to perception that the parts do not. This is demonstrated by the meaning of a triangle as opposed to the meaning of three separate lines.

Selectivity. The brain uses selectivity in attending to specific stimuli while ignoring or subordinating other stimuli. The process is immediately apparent in separating figure from ground. Those without perceptual disturbance can gain

empathic experience by observing ambiguous drawings designed especially for this purpose. At one instant one part of the figure will be selected for interpretation as foreground and the next instant it may be subordinated to background. The ability to control selection of stimuli to which one responds is essential to adequate visual perception.

Identity. Identification of that which is perceived is an important factor.⁹ Identification does not require attaching a symbol to the perceived, but recognizing parts or the whole as having been in one's previous experience. Apparently identity takes place by adding aspects of the figure one at a time until identity is possible.¹³ Recognition is often accomplished by association. That which is easily remembered is easily perceived as belonging to a particular class of figures. Irregular masses and lines drawn at random are not easily recognized. While unity is immediately recognized, identity takes longer and depends upon prolonged experience. Identity also depends upon the ability to generalize.

Relationships. Establishing relationships is a primary function of the frontal cortex, and establishing relationships is one of the most complicated elements in perception. It plays an essential role in concept formation. Discovering relationships requires much checking of the engrams in the brain to establish the percept or concept. For example, recognizing the relationship a sleeve has to the sweater both in terms of function and spatial relationship is an essential element to the total perception of a sweater.

Early and Late Learning

Clinical signs vary according to the age at time of brain injury. The variance is partly dependent upon the difference in the learning process of the child compared with that of the adult.

Hebb⁹ and Strauss and Kephart¹³ have contributed information which adds to understanding of learning and the age factor. Later learning differs from early learning in that the associations to be made can be based on already established related neural organization. Associations are not between unrelated processes as they are in children. For example, it is generally not difficult to remember a new name composed of familiar combinations of letters, even though the name has never been heard before. To remember a foreign name made up of unfamiliar combinations of letters is considerably more difficult. Hebb speaks of adult learning as being a "changed relationship between central effects of separate stimulations."⁹ Events with meaning are more easily remembered because of the prior neural organization which provides immediate associations.

Once a concept is developed, it is maintained in spite of brain injury. Later learning is primarily a matter of conceptual development as opposed to establishing basic precepts. Concepts are based on simple associations. In early learning, establishing an engram requires many neural fibers. Later on, fewer fibers are required for the same functioning.⁹

Hebb's theory suggests that the limitations of the early brain-damaged are at least partially due to the fact that a smaller quantity of neural substance is available. Fewer superordinate structures are created and fewer are available for interaction. Strauss and Kephart point out that the brain injured adult has remaining many neural patterns against which he can check the results of omitting a few. The brain injured child does not have this. He cannot check patterns of response.

THE MOTOR PROCESS

The first step in motor performance is the formation of the idea of the task to be performed. A plan is then organized to accomplish the act (ideational motor planning). Planning requires a concept of the body scheme and the surrounding environment so that a mental image of the action can be formed. The "plan" is then transmitted to the motor cortex for execution. A planned movement of the body requires a visual image of how the body is to appear in the act. Failure in any of these steps indicates the presence of apraxia. Nielsen¹⁰ has described the different aspects of apraxia. Ideational apraxia is the inability to ideationally plan the motor act. In ideokinetic apraxia, there is an interruption between ideation (which is possible) and crude motor function. In this situation the patient may do something very different from what he intends to do. Sensory apraxia results from the lack of proprioceptive sensation necessary to carry out activity.

In some cases, an awkwardness may exist which is not apraxia but is due to a lack of integration of the visual perception and motor output. Strauss and Kephart¹³ have emphasized the necessity of providing through visual perception a substantial and clearly structured pattern for the motor action to follow. These authors assert that better coordination is obtained with better visual-perceptual stimulation, and that the usual integration of perceptual and motor acts is considerably weaker in the brain-damaged individual. Related phenomena are loss of visual guidance of finger movements, apraxia of fingers only, and confusion of laterality.¹¹ There is need for further clarification of the possible interaction of—or even possible confusion between—lack of spatial perception and apraxia.

Learning to write, then, involves first the re-

visualization of the symbols and their form and spatial relationships and the motor pattern necessary to write the symbol. Finally, the proper motor engram must be activated.

The writer proposes that skilled movement might be considered as involving the same theoretical neurophysiological pattern as that proposed for visual perception. The basic engram for the simplest muscle contraction is set through early sensory input. Possibly more complex integrating engrams are developed for combinations of basic motor engrams. One of the more important factors influencing the establishment of integrating engrams is the perception, both visually and proprioceptively, of the individual's bodily spatial arrangement in anticipating and executing the motor goal. This involves the use of a visual process for planning the act and confirming the meaning (perception) of a resulting pattern of proprioceptive impulses.

It has been suggested that all motor elements are learned in childhood and that adult learning is primarily perceiving relationships and associations.⁹ Gesell and his associates⁸ have observed that the child can perceive only those movements that he is neuromuscularly able to make. Scattered observations appear to support the above hypothesis of skilled motor learning.

PRINCIPLES AND PROCEDURE OF TRAINING

The foregoing theoretical framework suggests principles of training in the visual-motor function.

Factors Involved in Training in Perception

Structuring of early experience. It is important that every handicapped child's experience be carefully and intentionally enriched with contact with objects that will contribute to the formation of basic perceptual engrams of all aspects of visual-motor function. Lack of motor opportunity to investigate objects from all directions will limit the growth of neural structures necessary for later learning and for coping effectively with the environment. Robinauld¹² has suggested ways of utilizing toys to provide enriched early experience involving visual-motor performance.

Establishing basic engrams. One of the most fundamental principles of perceptual training is the necessity of establishment of basic engrams before a high level integrated response is demanded. The same stimuli must be presented repeatedly in order to allow for the formation of anatomical change. The necessity of establishing the most basic engrams before expecting a correlation of them is easily overlooked in spite of its easy acceptance. For example, it could not be expected that an "E" could be recognized as a symbol with meaning until (1) both horizontal and vertical lines are perceived,

(2) the letter is perceived as a whole, and (3) it is identifiable as a form. Similarly, putting on a sweater involves even more steps, including motor steps.

In working with the brain injured, providing perceptual motor tasks involving easy mastery before presenting harder ones activates the basic engrams before making demands on those of higher integration. Presentation in this manner not only "paves the way" but also focuses attention on the problem at hand. Would learning to put on a sweater be easier if the child was presented with sleeves only for mastery, then a sleeveless sweater, and finally the whole sweater?

Multi-sensory approach. The multi-sensory approach, such as reinforcing visual perception with tactual and proprioceptive perception, has been utilized by therapists and educators for some time. It deserves further elaboration. Hebb's work is reflected in the following discussion. The larger the amount of neural structure involved in the establishment of engrams, the greater is the opportunity for interneural facilitation. The probability of the establishment of the engram is thereby increased. After the establishment of integrating engrams by associating a variety of afferent stimulation, the possibility is greater because of the variety of stimuli which are available for elicitation. As an example, if the concept of an orange is learned by sight, touch, taste and smell, later the sensation from only one of these sources can activate the engram for an orange and the other associated stimuli.

As a therapeutic procedure, the association of tactual, proprioceptive, skeletal, visual, thermal and auditory stimuli as mechanisms facilitating visual-motor function can be purposefully and intentionally used. A common example of the use of the multi-sensory approach is the tracing of symbols with the finger, especially on a surface providing tactual stimulation. Later vision alone may activate the engram for the symbol which was originally established with the aid of multi-sensory stimulation. Strauss and Lehtinen's suggestion of the use of a clay pan for writing provides another excellent example.¹⁴

The necessity of testing for the presence and perception of sensation before attempting to use it to facilitate learning is, of course, obvious.

Proprioceptive impulses arising from use of the eyes contributes to multi-sensory facilitation of perceptual organization. Scanning all visual material, focusing on different parts successively, utilizes these impulses. Logically, the larger the form being scanned, the greater the elicitation of proprioceptive impulses and the easier the differentiation and identification of the parts. The stimulation of an increased number of retina

cells by a large form further facilitates engram establishment.

Associated engrams (originally arising from different sensations) enable the identification of three-dimensional objects in space from a two-dimensional picture of it and vice versa. The ability to establish integrating engrams of this type can be encouraged through presenting two-dimensional drawings of three-dimensional objects and using a multi-sensory approach to coordinate the two.

Intensity. Intensification of the stimulus facilitates the establishment of basic engrams. Intensification activates more neural structures both on the retina and in the cortex. Outlining a two-dimensional form with a heavy black line for easier perception may be successful because of the intensification of the stimulus. Large black dots are more easily perceived than small grey ones. Proprioceptive stimuli are increased through resistance. Size may be a factor in increasing proprioceptive and tactual stimuli just as it is for increasing visual stimuli. A concentrated afferent bombardment of visual stimuli can be obtained by focusing a beam of light on a paper and guiding it along the outline of a form to be perceived. Intensity of stimulus is thereby combined with proprioceptive impulses from the oculo-motor muscles.

Relativity. Recognition of relative size and shape is encouraged through pointing out such similarities or differences in concrete objects or pictures of them. Many toys lend themselves to such analysis. Arranging a group of cardboard circles according to successive size is another direct training method. A multi-sensory approach is usually necessary for grasp of the concepts of relative size and shape.

The relativity of space (the dualisms were mentioned above) can be taught by instructing the patient to observe the relationship of two objects, then to place the two other objects in a similar relationship. The motor activity is as important a part of the learning of the space relations as is the visual perception. Finding such relationships in pictures (such as a car inside a garage) is another perceptual training medium.

Time. Since time of visual exposure is a factor in visual perception, it can be used to grade the difficulty of the visual perceptual task demanded. An object or picture of an object or form to be identified can be exposed to vision for as limited a time as possible for the patient to perceive it. More rapid perception is encouraged by shortening the time of presentation of the stimuli.

Time is probably also a factor in organizing of proprioceptive impulses. When one walks across a dark room to turn on a light, his dis-

tance judgment is entirely proprioceptive, with time helping to measure the impulses. Training in the perception of time may be a future therapeutic task.

Meaning. The brain can visually perceive more rapidly those stimuli which have recognized meaning. If training in specific perceptual tasks is involved, carefully exploring the meaning of each perceptual element will speed the process.

Following the Steps of Establishing a Percept

Foreground and Background. Since visual perception involves mastery of certain steps in perception, it is important that the therapist check the patient to be sure that the elementary steps are mastered before the more difficult ones. A major preliminary step is separation of foreground and background. A fairly standard procedure, which was possibly first recommended by Straus and Lehtinen, is outlining of the foreground with a heavy basic line to separate it from the background. Another procedure is to place a line drawing over a background of design (such as a piece of wall paper) or another picture and encouraging the perception of the line drawing to the exclusion of response to the background. Perception is encouraged by presenting a separate picture of the line drawing only and using a multi-sensory approach. The less homogenous and more distracting the background, the more difficult the perceptual task.

Perceiving the object as a whole. Seeing the forms and objects as a whole is a function which is sometimes absent, with parts being seen successively rather than simultaneously. This process is dependent upon integrating structures which, in turn, are important in concept formation. The therapist can demonstrate to the patient how a group of stimuli can be organized into a larger unit. Albitreccia¹ has used this principle in tasks involving the assembly of objects which consist of several parts. Presenting only a part of an object or part of a picture of an object for identification encourages the development of integrating structures. An example of the latter approach is to show a picture of a portion of a milk bottle for recognition. The smaller the portion shown the more difficult the perceptual task.

Two-Dimensional

Recognition of form. After the foreground is perceived as a whole and separate from the background, training in recognition of form (and object) can be begun. Strauss and Kephart¹³ have recommended the use of a cardboard stencil with simple geometric forms cut out for coloring to grasp the idea of form. A practical, although single sensory approach to recognition of ob-

jects is presenting a picture briefly and then asking the patient to find the same picture from a series of them. Pictures cut from magazines and pasted on cards are recommended. Finding the one picture which is slightly different from a series and recognizing a different view of the same object are additional steps. Degree of difficulty in perception is graded according to the amount of similarity or difference. For example, recognizing a picture of a red car among a series of pictures of different colored cars, only one of which is red, is a relatively simple task, based primarily on color perception. Recognition of a red car of a specific design among a series of red cars of approximately the same size and similar views is perceptually demanding of anyone not versed in car design. Picture dominoes are a commercial toy requiring recognition of similar forms.

Recognition of three dimensional form and space. Three dimensional form perception is encouraged by presenting actual objects (wooden blocks and forms are practical) for recognition in a manner similar to the card procedure. Identifying a cube among spheres is simple, but identifying one wheel-shaped form among many wheel-shaped forms requires close perception of similarities and differences. The number of objects which must be perceived in such a choice is another gradient of difficulty. The folding of paper into three dimensional designs according to a given sample demands a high degree of spatial perception and the motor ability to manipulate objects in space.

Strauss and Lehtinen¹⁴ introduced the marble board as a testing device, for it demands a fairly complex visual-motor performance. Peg boards of various types used by therapists for neuromuscular training involve the same perceptual motor demands and are well adapted to training in three dimensional perception. Learning takes place by the patient's attempting to duplicate a design prepared by the therapist by placing pegs in certain holes, or caps over stationary pegs, depending upon how the equipment is built.

Training in Specific Tasks

Techniques in training in perception of certain specific visual stimuli encountered in activities of daily living have been presented by Brower.⁴ Other specific training, as in vocational tasks, can be based on the principles outlined above.

Concept Formation

Recognition of similarities and differences provides a basis for abstract reasoning. Recognizing two different boxes as belonging to the same category involves thinking beyond the con-

crete and toward the realm of the abstract. The establishment of integrating engrams is encouraged by recognition of similarities on which categories can be used. This is one of the first steps in concept formation and is important to all future perceptual and conceptual behavior. One of the simplest examples of an integrating engram is perceiving a box as the same box whether one sees it from the end or the side. The next step in developing the concept of "box" is to perceive one box as belonging to the same category (concept) as a different box because the two have certain characteristics in common. The ability to form concepts is necessary for the full development of the intellect. Judgment and reasoning are dependent upon them. Accordingly, basic training in concept formation is essential. Association of concrete objects through recognition of similarities and differences provides an initial step in the ability to form concepts.

Concept formation can be begun by presenting pictures of several objects which are obviously of one category, such as apples, oranges and peaches, helping the patient to recognize the concept, which in this case is fruit. From this step, the patient can be asked to sort a series of pictures into two piles, every picture in one pile having one thing in common and every picture in a second pile having something else in common. Sorting by color is one of the easiest concepts; sorting by form is a little harder. Sorting a series of pictures of shoes according to whether they are men's or women's is more difficult, and sorting a series of pictures of human beings according to standing or sitting posture demands a fairly complicated conceptual grasp.

Another approach using a series of pictures, is pointing out one and asking which of the other pictures goes with it. A picture of a feather goes with a picture of a bird, but not with pictures of a tire, tree or hammer. Explanations as to why some objects go with others increases conceptual development.

Training in the Motor Process

Training in the motor component of visual-motor performance is almost automatic if apraxia does not exist. The presence of apraxia greatly complicates the situation. Before ideational motor planning can take place, the patient must have a good grasp of his body scheme, that is, perceive the correct anatomical and spatial relationships of each part of his body. If this is absent or diminished, it can be encouraged through providing increased sensory input, emphasizing stimulation of the receptors of the skin, muscles, fascia, periosteum and joints to establish awareness of a part and its spatial re-

lation to the rest of the body. Use of simple pictures or puzzles of a human being encourage development of the concept of the human physical form. Further help is gained from the patient's assuming the position indicated in the picture or puzzle. When stressing hand function, pictures of arms and hands are most applicable. Difficulty in concept of the body scheme is usually reflected in manipulation of such puzzles.

Ideational motor planning requires special effort in visualizing and anticipating the motor act. The process is sometimes facilitated by such approaches as oral direction, visual demonstration and passive assistance. After the planning, execution of the motor act takes place and usually requires careful guidance by awareness of proprioceptive and visual stimuli as guides to the motor act. Verbalizing about the situation contributes another sensory approach. The peg boards and folding paper provide convenient therapeutic experiences in cases of apraxia. Another common exercise combining visual and motor performance is the duplication of geometric designs made of colored squares of cardboard.

Pre-writing training. The above procedures are applicable to pre-writing training with apraxics. More specific suggestions follow. Horizontal lines are usually the most easily mastered, although occasionally vertical lines may be easier. Two large black dots are placed on the paper about an inch apart. The patient is instructed to look closely at one, to place his pencil on it, then to shift his eyes to the second dot and bring his pencil to it. Preceding this step by either demonstration or by visually following the path of a beam of light is helpful. The exercise can be graded by reducing the size of the dots, placing them farther apart, and finally by expecting the patient to draw a line of a given length without help of black dots. The procedure can be made more interesting by superimposing the black dots on two lines of a drawing in a color book. When many lines have been drawn, the picture has a semblance of having been colored. Colored pencils add to the satisfaction.

After horizontal and vertical lines are at least partially mastered, a circle, beginning and returning to the same dot, and other curved lines can be tried. Some of the basic penmanship exercises, such as successive loops between heavy lines are appropriate. The diagonal line, ontogenetically late in visual-motor integration, is advisably one of the last pre-writing forms to be mastered.

ONTOGENESIS OF THE VISUAL-MOTOR FUNCTION

The ages at which various aspects of the visual-motor function appear in the neurologically

normal individual provide guides for training. The following developmental steps are based primarily on observations made by Gesell⁸ and Strauss¹³ and their associates. At birth there is no awareness of three-dimensional space. As the child lies in the customary tonic neck reflex position, his eyes gaze in the direction of the extended hand. This position helps lead to the perception of movement and inspection of the hand. The infant first recognizes the nearness of objects, then sees two close objects as separate. Next he is aware of the fact that objects are the same under different spatial relations. At four to five months of age the child begins to coordinate vision and manipulation, and at five to twelve months purposeful movements are begun.

As early as twenty-eight to forty weeks the infant can use geometric form discrimination as a learning cue for a reaction of choice avoidance. A two year old will name colors, but often not correctly, and can identify familiar pictures. Six months later he will name objects he can identify. At one year approximately, the long structuring of the perception of space begins. Concept of space at first centers around special functions, such as "mouth space," "visual space," and "tactile space." At eighteen months the child knows where spoon, shoes and other familiar objects are in space. At about two and one-half years the child becomes aware of the important dualisms of up and down, in and out, back and forth, top and bottom, back and front, high and low, near and far. At this age space perception is in much better command in the eye-hand area. At three the child is more aware of far space and able to relate himself to it. Spatial relations are first mastered in the immediate area and gradually extend out and away from the individual. At four a child can sense height, width and depth simultaneously.

Visual-Motor Reproduction

The following age norms are derived primarily from the works of Gesell⁸ and Bender², although other sources are reflected. At one year a child will bring a crayon to paper and make a few marks. At fifteen months the marks are a back and forth scribble. Bender², in her study of the Gestalt relationship, has determined that the simplest motor Gestalt is an enclosed loop (imperfect circle). The loop is usually the result of motor activity and at first just happens to resemble a visual stimulus. The most primitive form of relationship of any two parts is two concentric loops. Patterns are apt to be produced in a directional movement toward the right, horizontally. Usually perseveration is present.

At eighteen months the child is apt to like

toys and games with a vertical orientation (such as a block tower), and he makes a downward stroke on the paper. At two years he regards his own movement when scribbling and is inclined toward making horizontal strokes. At three years he can manipulate a simple form board and copy a circle. This is the first evidence of the ability to copy. A four or five year old can draw a cross and a square from a copy but not a triangle. He can also make a crude design and print a few letters of the alphabet. At five years the child tries to color within lines and to cut and paste simple things. At six years printed letters may be reversed, a matter which still occurs occasionally at eight years of age. At seven years the pencil is gripped tightly and held close to the point. The pressure is variable and apt to be heavy, indicating that this coordinate visual-motor activity is one involving considerable skill. Interest in maps at this age reflects a growing mastery of representation of space. At seven the oblique line is sufficiently mastered to copy a diamond. It is not until a child is eight that he can be expected to distinguish right from left on himself and other persons. At nine the individual is interested in perspective drawings but needs help in executing them.

SUMMARY

Many individuals with brain injury will exhibit some difficulty with visual-motor performance. It is hypothesized that visual perception and probably perception of skilled movement involves a long slow process of establishing basic and integrating engrams. The proposed steps of visual perception are recognizing basic unity, separating foreground from background, recognition of form and space, and the formation of concepts. Factors which influence the organization of stimuli into perception are time, relativity of stimuli, intensity of stimuli, the Gestalt function, selectivity of response to stimuli, identity, establishing and recognizing relationships and the correlation of sensations arising from motor activity. Principles and procedures of training in visual-motor performances are based on the above steps and factors.

1. Occupational therapy department, University of Southern California, Los Angeles, California. The writer is indebted to Lou's P. Thorpe, Ph.D., for guidance in this study.

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THE STATIC WRIST SPLINT

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WILLIAM HENDERSON²

JOHN W. CAMPBELL, O.T.R.³

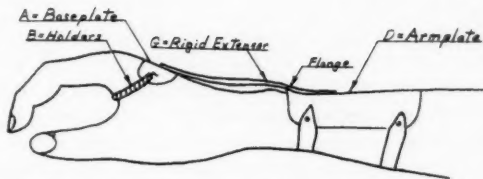


Figure 1-A. Diagram of static wrist extension splint, showing component parts of splint. A. Base plate; B. Holders; D. Arm plate; G. Rigid extension.

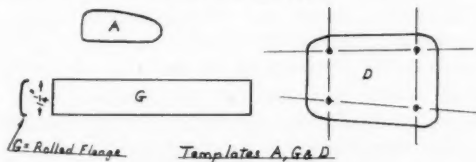


Figure 1-B. Diagram of templates used in construction of static wrist extension splint. A. Base plate; G. Rigid extensor; D. Arm plate.

This the third of a series of articles on upper extremity bracing that has been developed at the California Rehabilitation Center.⁴ The static wrist splint, like the two described in the preceding articles, is made up of common parts and therefore may be changed from one type of brace to another very easily.

OBJECTIVE

The objectives of this brace are: (1) to hold the wrist in extension eliminating almost all motion of the wrist, and (2) to reduce the material for the palm of the hand to a minimum.

DESCRIPTION

This brace, shown in Figure 1A, is identical with the spring wrist cock-up splint previously described, except for the extension mechanism which consists of a rigid band of stainless steel (G). It has a base plate (A) held to the back of the hand by holders (B). The armplate (D) is held to the arm by leather straps and fastened with truss studs. The base plate and arm plate are fixed to either end of the rigid extensor band, and immobilize the wrist when acting together.

CONSTRUCTION

The construction of the base plate (A) and the holders (B) has been described fully in the first article, "The Spring Opponents Splint," February edition of AJOT, 1958. The construction of the arm plate (D) is described in the article, "The Spring Wrist Cock-Up Splint," March edition of AJOT, 1958.

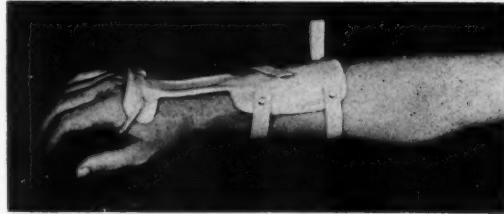


Figure 2. Showing static wrist extension splint applied to right forearm, wrist, and hand.

When these three pieces have been constructed, the rigid extensor (G) is made. Templates or patterns for the construction of the different parts of the static wrist extension splint are shown in Figure 1B. A piece of .035" stainless sheet steel is cut one and one-half inches wide, approximately five inches long. The edges or sides of the band are rolled up in a one-fourth inch flange. This rolled edged is illustrated in template (G) and its purpose is to strengthen the rigid extensor, and to roll the sharp edges away from the wrist. One-half inch of one end of the rigid extensor is formed to the shape of the base plate (A) and soldered into place. The rigid extensor then runs down the back of the hand, is bent over the flange of the arm plate, and the remaining material is shaped to the arm plate and soldered into the desired position of extension. This enables the wrist to be immobilized in the desired position of extension.

The final step is to cover the brace with polyvinyl chloride resin. This process has been described previously by Huddleston, Henderson, and Campbell, (AJOT, February, 1958).

Minor corrections in the amount of wrist extension may still be accomplished by bending the rigid extensor (G), but careful attention must be paid to preserving the rolled flange. In some cases where exceptional rigidity is necessary, a piece of wire formed and soldered to the

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DEVELOPING COMPOSITE CRITERIA FOR THE PREDICTION OF OCCUPATIONAL THERAPY SUCCESS

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One of the recommendations made repeatedly by occupational therapists participating in the 1956 regional institutes, sponsored by the U.S. Office of Vocational Rehabilitation, was that increased care should be taken in the selection of students to be trained for occupational therapy. The American Occupational Therapy Association (AOTA) already has provided a carefully developed instrument, the Career Inventory, designed to help in this process.

In the AOTA study the Inventory was validated against two criteria, one obtained from ratings given to on-the-job therapists and the other obtained from ratings given to three hundred eighteen students in their post-college clinical affiliation situations. The authors report a correlation of .55 between the total score on the Career Inventory (unweighted sum of the five part scores) and the rating of success in clinical affiliations, and they report a multiple correlation of .56 between the weighted sum of the five part scores and the same criterion.¹ From these results they conclude the validity of the Career Inventory is not increased by application of particular weights to the five part scores and they recommend using the total score as a basis for selection.

The writers of the present article were interested in taking another approach to testing the validity of the Career Inventory. The approach was one suggested by Hotelling⁴ in 1935 as being particularly appropriate to the problem of determining validity when several measures have been taken as an estimate of the "true," non-measurable criterion. According to his idea weights are found for the battery of criterion measures as well as for the battery of predictor measures, and the correlation between the two weighted combinations is the maximum correlation that can be obtained. The weighted combination of criterion measures yielding this maximum correlation is called by Hotelling "the most predictable criterion." In addition to "the most predictable criterion" there might also be several other composites, and if so, this series of composite criteria is a more complete representation of the battery of criterion measures than is any single score. Thus in the present study, use of the Hotelling method, weighting separate-

ly both the battery of five part scores and the battery of criterion measures, gave the maximum correlation between the two batteries and in addition furnished more detailed information about the composition of the criterion of occupational therapy success. It is suggested this more detailed information increases the accuracy of using Career Inventory scores and thus provides a basis for making a more careful selection of persons for professional training in occupational therapy.

The specific purposes of the present study were (1) to determine the validity of the Career Inventory when weights were applied separately both to the battery of criterion measures and to the battery of predictor measures (the five part scores of the Career Inventory); (2) to suggest a convenient procedure based on the results which could be used by occupational therapy school administrators, deans and other counselors in helping students make important decisions about preparing for occupational therapy.

Most persons desiring to study the validity of some instrument as a selection device encounter difficulty defining a suitable criterion. The success or the aptitude to be predicted is apt to be so complex that it cannot be represented adequately by a single overall score. Frequently measures of several abilities or characteristics are obtained, scores for each person are combined by averaging or summing, and this single total score is used as a "composite" to represent the criterion battery. That a simple average or sum of a set of scores for each person, as in this case, may not be a complete representation of the scores but instead may be only one factor has been shown by Holzinger³ and further emphasized by Cumbee and Harris.² As these writers suggest, when scores on several criterion variables have been obtained as an estimate of a more general aptitude and it is desired to develop a criterion, a first step should be a study of the intercorrelations among the criterion variables to determine whether several composites are needed. If the aptitude does prove to be multi-dimensional rather than unidimen-

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	I	II	III	IV	V
I					
II	-.129				
III	-.130	-.002			
IV	+.386	-.030	+.008		
V	+.148	+.028	-.123	+.95	

Table 1. Intercorrelations among the five parts of the career inventory.

sional, i.e., if there are several composites there are also, as Hotelling and others point out, several relationships between the battery of criterion variables and the battery of predictors.

The Career Inventory had been given at the University of Wisconsin to sixty-seven persons enrolled in the occupational therapy curriculum who had also taken a practical course in hospital recreation. Ratings of performance in this course were given to each student by two instructors in the department of occupational therapy, and an average of these two ratings was taken as a score for each student on each trait. A part of a rating form for clinical affiliations, developed by the American Occupational Therapy Association and formerly used nationally, was used in the rating of this performance. The students were given ratings on each of sixteen traits, for example "approach to patient," "ability to impart instructions," and others listed in Table 2. The criterion battery in this study is comprised of these sixteen variables. While for the original study of validity the AOTA had available ratings of performance in clinical affiliations, the only criterion scores available at the University of Wisconsin in any quantity were those obtained in the hospital recreation course (a pre-clinical experience). At the time the Career Inventory was so new that only a few students who had taken it had also completed their hospital affiliations. This study then is an intermediate project until such time as clinical affiliation or on-the-job ratings for the sixty-seven students become available.

Intercorrelations among the part scores of the Career Inventory were low (see Table 1), giving evidence as did the AOTA study that the five parts may be considered relatively independent measures. The largest amount of overlapping appears between Part I and Part IV, though this is not unreasonably high since subsections in both parts are designed to measure in some way adjustment characteristics, either to family and early background or to present associates and friends.

For purposes of comparison, relationships between the battery of sixteen criterion scores and the battery of five part scores were investigated by three methods.* In the first two methods the criterion battery was represented by a single number, an average of the sixteen ratings. The

product-moment correlation between this single criterion "composite" and the total score (unweighted sum of the five part scores) on the Career Inventory was .056. The multiple correlation between the same criterion "composite" and a weighted combination of the five part scores was .311. In contrast to the AOTA study, these results show an increase in validity by application of particular weights to the part scores. In the AOTA study, fifteen variables were included in the prediction team while in the present study only five variables were included. Although the increase in validity is not great it may suggest, as do the results of many studies in the field of the prediction of teaching success, that increasing the number of variables in the prediction battery usually does not result in a significant increase in validity.

The third method employed in this study was concerned with determining first, whether several composites might be needed to represent the battery of criterion ratings or whether a single overall score would be sufficient and second, if several composite criteria were needed, what variables would be emphasized in each? A mathematical model⁶ translating Hotelling's idea (of weighting separately two batteries) into matrix notation was followed. This called for computing intercorrelations among the five part scores, intercorrelations among the sixteen criterion scores and cross-correlations between each part score and each criterion score. Arranging these correlations in a matrix, partitioning the matrix and solving the equation

$$|CA - CT - \lambda B| = 0$$

gave the maximum correlation between the two batteries and also gave the weights for the "most predictable criterion."[†] The weights thus derived for Composite I, and the correlation between the composite and the weighted five part scores appear in the second column, Table 2. Continuing the Hotelling method, weights for the part scores were found by shifting to the classical multiple regression technique with the five part scores predicting Composite I. By this procedure, three composites and three sets of weights for the part scores were found as well as the correlations between the pairs of weighted combinations. Results obtained by the three methods employed in this study are summarized in Table 2.

*The authors wish to acknowledge the assistance obtained from the Numerical Analysis Laboratory, University of Wisconsin, in the computations necessary for this study.

[†]The tables of correlations and the matrices used in these computations are filed with the original study in the department of occupational therapy, University of Wisconsin.

	HOTELLING METHOD (Canonical Correlation)			Multiple Regression	Product-Moment Correlation
CRITERION VARIABLES					
	Composite I	Composite II	Composite III		
Approach to patient	— .0251	+ .0877	+ .0258	Single Criterion*	Single Criterion*
Ability to impart instructions	— .3383	+ .5026	+ .1763		
Initiative	+ .1944	— .5076	— .2604		
Professional behavior	+ .1160	+ .0568	+ .1766		
Preparation	+ .2324	+ .0806	— .2938		
Adaptability	— .0176	— .3531	— .3771		
Emotional stability	+ .1737	— .2116	+ .4854		
Poise	+ .0032	— .4529	— .2472		
Sense of humor	+ .0702	+ .3868	+ .0137		
Tact	— .3471	+ .4797	— .0249		
Judgment	— .0734	— .3901	+ .0544		
Dependability	+ .0009	+ .1193	+ .0257		
Cooperation	+ .1574	— .2780	— .0740		
Ability to profit from instruction and criticism	+ .4934	+ .1350	+ .0623		
Punctuality	— .1833	+ .1749	+ .3042		
Grooming	— .1078	+ .3204	+ .0358		
PREDICTOR VARIABLES					
Occupational Therapy Career Inventory:					
Part 1, Background Information	+ .8909	+ .2331	+ .3465	+ .2962	Total Score, Career Inventory
Part 2, General Activities	+ .0221	+ .0396	+ .4931	— .0245	
Part 3, Specific Activities	+ .0222	+ .8325	— .2658	— .0238	
Part 4, Adjustment Characteristics	— .2122	— .3769	— .0340	+ .0113	
Part 5, Ancillary Fields	— .4005	+ .3302	+ .7517	— .1072	
CORRELATION	Rc = .522	.440	.366	R = .311	r = .056

*This single criterion was formed by averaging the ratings given each applicant on the sixteen criterion variables.
 Table 2. Results of Three Methods Employed to Study Validity of the Occupational Therapy Career Inventory.

Three composite criteria were found necessary to represent the criterion battery. The weights given in Table 2 indicate the relative emphasis of each variable in each composite. The variable "ability to profit from instruction and criticism" clearly appears in Composite I (+.49) while it has relatively little emphasis in the other two composites (+.14 and +.06). Variables emphasized most in Composite II are "ability to impart instructions" and "tact," with "sense of humor" and "grooming" also being important. Composite III is most heavily weighted with the variable "emotional stability" and in addition "punctuality" is given some emphasis.

It is now possible to discuss the validity of the Career Inventory in terms of the relationships between the part scores specially weighted and each of the three composite criteria identified

from the criterion battery. The canonical correlation between the five part scores (combining them using the first set of weights for the predictor variables) and the "most predictable criterion" (Composite I) is .52, the maximum correlation that can be obtained between the two sets of variables. This is very nearly the correlation (.56) found in the AOTA study in which the criterion ratings were on performance in clinical affiliations. The correlation obtained in the present study, based as it was on ratings of performance in a hospital recreation course, an approach to the ultimate criterion, strengthens the evidence found in the AOTA study.

All three of the correlations between the sets of weighted part scores and their corresponding composite criteria are higher than the multiple

correlation between the weighted part scores and the single criterion. Moreover, results found by the Hotelling method show specific components of the criterion in a way results from the multiple regression procedure do not. For example, the first weighted combination of part scores is useful mainly to predict the "ability to profit from instruction" aspect of occupational therapy success. Similarly, the part scores are successively weighted with a different set of values each time to predict in turn the "ability to impart instructions" and "sense of humor" aspect of success (Composite II) and the "emotional stability" aspect emphasized in Composite III. On the other hand, use of a single criterion does not make it possible to infer the particular aspects of occupational therapy success being estimated.

How can the results of this study be used conveniently to help select persons for professional preparation in occupational therapy? The first step is to multiply an applicant's adjusted raw scores by the special weights for predicting Composite I. The five weighted adjusted raw scores are then added, and this total is the applicant's "score" with respect to Composite I. These totals for as many persons as possible are arranged in a distribution from highest to lowest, and from this an individual's relative standing on Composite I may be determined. The process is repeated using the special weights for Composite II and finally the special weights for Composite III. It may be helpful to devise an individual score sheet for each person, entering in column 1 the adjusted raw scores, in column 2 the values obtained by multiplying the adjusted raw scores by the special weights for Composite I, and similarly in columns 3 and 4 the values for Composites II and III.*

SUMMARY

It has been the purpose of this study to seek additional information about the validity of the Occupational Therapy Career Inventory as a tool for selection by using Hotelling's method for developing a series of composite criteria rather than using a single criterion as is the usual procedure. Three composite criteria were identified from the interrelations among the criterion variables. The canonical correlation between the specially weighted part scores and Composite I was .52, the maximum correlation that could be obtained between the set of sixteen criterion variables and the set of five part scores. Since the Career Inventory correlates to this extent with performance in a hospital recreation course, which only partially represents the ultimate criterion of success, it is possible a study similarly designed but using ratings of performance either

in clinical affiliations or in hospital situations as a practicing therapist might show an even higher correlation.

Evidence concerning the validity of the Career Inventory as found in this study ($R_c=.52$) is in close agreement with the evidence already available as a result of the original study made by the American Occupational Therapy Association ($r=.55$, $R=.56$).

While results of the AOTA study indicate that application of particular weights to the part scores is of no advantage, the findings of the present study show validity is increased from .056 to .311 when the five part scores are combined with regression weights. Moreover, this study has shown that validity is still further increased when both the criterion variables and the predictor variables are weighted.

A procedure which makes more sensitive use of Career Inventory scores has been suggested from the results of this study. This procedure will enable school administrators and others to give more effective help to individuals who are making decisions about preparing for occupational therapy.

*Tables containing all possible adjusted raw scores multiplied by the special weights for each of the three composites have been made and are available on request from the authors.

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SEE YOU IN NEW YORK
HOTEL NEW YORKER
OCTOBER 17-24, 1958

DAILY LIVING ACHIEVEMENTS OF THE ADULT TRAUMATIC QUADRIPLEGIC*

JENNIE ANNE LUCCHI, M.A., O.T.R.

While methods of general medicine and surgery have been instrumental in lengthening the life span of the patient with cervical spinal cord injury, physical medicine's contribution has been to make the patient as self-sufficient as possible. What the patient has gained through his combined effort has enabled him to lead a much more meaningful and happy life.

Statement of the problem. The purpose of this study was to ascertain the accomplishments of a number of adult traumatic quadriplegic patients at given levels of injury. The investigation dealt mainly with activities of daily living which were within the potential capabilities of the patient and which had been developed during the rehabilitation process.

Importance of the study. As a member of a rehabilitation team, the writer had occasion to come in contact with numerous cervical cord injury patients, the greater number of whom were transferees from government or general hospitals. During the course of treatment, the patients were questioned and it became apparent that the patients transferring from general hospitals were less advanced in rehabilitative skills. This led the author to assume that many therapists, particularly those in general hospitals, because of an insufficient contact with quadriplegia, were limited in their knowledge of these patients.

This study was undertaken with the hope that it would point out the achievement possibilities often latent in many of these patients and thereby guide the therapist in setting goals for their rehabilitation.

Selection of Subjects. The cases reviewed were limited to the neurological lesion levels of cervicals 4, 5, 6 and 7, to lesions received through traumatic experience, and to cases referred to occupational therapy during their hospitalization. All were male patients.

Selection of Activities. The activities of daily living were selected on the basis of those which fell within the scope of occupational therapy and within the potential capabilities of the patient.

The self-care activities included eating and drinking activities and toilet activities such as combing or brushing hair, brushing teeth and shaving.

The hand activities included writing, typing, page turning, use of the telephone and smoking.

Locomotion and traveling included wheelchair propulsion and some instances of car driving.

Rating scale of patient's performance. The

patient's performance was evaluated on his ability to perform the selected activities as follows: (1) independently, (2) with assistance but without assistive devices, (3) with assistance and with assistive devices and (4) unable to perform activity.

It must be noted that the achievements reported here were attained by the patients in a hospital situation and accordingly represent, in all likelihood, an under-evaluation of the possible achievements. In such a situation equipment is not placed for the convenience of the patient, ward aides, because of time schedules, are apt to undertake a task themselves rather than wait for the patient to perform it, and volunteer workers are present to be called upon. All may tend to lessen the patient's motivation and his ability to perform at maximal capacity.

The eating activity. Assistance was necessary in preparing food, to simplify consumption. The solid foods such as meat or lettuce were cut into morsel size; the bread was buttered and generally cut into small pieces, and food was seasoned or beverages sweetened. The plates were redistributed on the tray for easy reach and unnecessary dinnerware was removed. This assistance varied from maximal to a minimal degree.

If the patient was confined to his bed, positioning of the tray or the patient became necessary. If the patient was in a wheelchair, the tray was prepared and set on a lapboard clamped to his chair arms.

The assistive devices were constructed as simply as possible and in many instances, especially where wrist splinting was not necessary, patients were able to put on and remove devices without assistance. This was accomplished either by shaking the hand until the device dropped off, pushing the device off with the other hand, or gripping the utensil end with the teeth and pulling the arm away. Eating utensils with built-up handles called for minimal assistance.

Plate guards to prevent food spillage were in use in three instances and would eventually be discarded when motions became more coordinated.

The patients requiring no assistive devices either wove the utensil handle between the fin-

*An abstract of a thesis presented to the faculty of the University of Southern California in partial fulfillment of the requirements for the degree of Master of Arts. The study was made possible by a grant from the Office of Vocational Rehabilitation, Washington, D. C. Research conducted at Veterans Administration Hospital, Long Beach, California.

gers, used a loose palmar grip on the utensils, had sufficient strength to hold utensils in a fairly normal position, or had devised other means of holding the utensils. The food was either scooped up or pierced with the eating utensil and brought to the mouth.

A sandwich was handled by having it placed on the dorsal surface of one hand, holding it in place with the other hand and then bringing both hands toward the mouth.

The most common method of beverage intake was through the use of various types of drinking tubes and in some cases with the additional use of a tube holder. Three patients, in the C-4, C-5, and C-6 classification were using a cup holding device; five had cups with specially large handles for insertion of flail fingers enabling all eight to drink directly from their cups. Large plastic cups were also used, the patient gripping it with both hands to bring it to his mouth, but this type of cup was not desirable for hot drinks.

The teeth brushing activity. In the self-care activities this task ranked second in order of performance ability. Assistance consisted mainly of preparation for the task. The resourceful patient was able to remove the toothpaste cap quite effectively with his teeth, and squeeze the tube by bringing the heel of the hand down on it. The toothbrush handle was either woven through the fingers, held awkwardly with two hands, or if the grasp was sufficient, held in a fairly normal position.

For the patient requiring an assistive device, a swivel-type brush holder was generally employed for greater ease in performing the activity. For this type of patient additional assistance was required in putting on and removing an assistive device. It was also necessary to spread paste on the toothbrush or supply a glass of water for mouth rinsing purposes. To eliminate some of this preparatory aid, tooth powder had begun to take precedence over toothpaste. A metal band encircling the powder can and the patient's hand enabled him to pour the powder on his toothbrush and to continue with the task unaided.

Toothbrushes with built-up handles were used, in the few instances of false dentures, to simplify the task for the patient.

The combing or hair brushing activity. In this activity, the choice of a comb or a hairbrush depended upon the patient's preference and ability to use the articles. In the group requiring assistive devices, seventeen patients were able to use both a comb and a hairbrush, twenty-six preferred a hairbrush and twenty-eight a comb.

Of those unable to perform the task, fourteen patients lacked the necessary range of motion, one patient had become dependent on his

over-solicitous wife, and another patient, due to baldness, had no need for the activity.

Aid in this task was mainly required to put on and remove assistive devices. The simple devices were in many instances put on by the patient and removal was effected by shaking them off. Additional aid to complete the task was necessary when the range of motion limited the patient's performance.

This activity, however, did not present too great a problem and was overcome in a number of instances by the patients' taking advantage of the short haircuts more popularly known as crew-cuts.

The shaving activity. The data in this activity disclosed that twenty-four patients were unable to perform this task, nine of whom, due to racial characteristics, had no need for the activity. One of the patients was dependent on his over-solicitous wife and would make no effort to attempt the activity, others lacked the essential range of motion or appeared to lack the motivation to accomplish the task.

The use of an electric shaver, aside from its safety value, curtailed assistance in the activity. Safety razors entailed more assistance, such as the insertion of blades in the razor and aid in lathering and washing the face.

In the group of seventeen patients requiring assistance but no assistive devices, the only requisite with the use of the electrical shaver was to insert the plug in the electric socket. Generally, both hands were brought into use to hold the shaver.

Of the sixty-six patients requiring assistance and assistive devices, one patient was well able to perform the task with the use of overhead slings and no shaver holding device. This group contained thirty-four patients using electric shavers which, in addition to the insertion of the plug, required assistance in the application of the shaver holding device. Operation of the shaver was frequently started and stopped by the patient's manipulating the switch with his teeth or the back of his hand.

The writing and typing activities. These activities were combined to give a clearly representative picture of their use. If the patient acquired the ability to write sufficiently for his needs, in many instances he was less inclined to attempt typing. On the other hand, if he lacked the ability and could not perform the writing activity, he would be much more likely to undertake the typing activity to compensate for his failure in the former activity. This, however, did not bar patients from undertaking both, and this study disclosed that forty-three patients were able to accomplish both activities.

Writing without assistive devices was perform-

ed with two hands holding and guiding the pen, by weaving the pen through the fingers, or if the grasp was sufficient, the writing implement was held as normally as possible. Assistance in this group consisted chiefly in preparation for the activity.

Various types of writing devices were utilized and were individualized for each patient's use. Assistance in the group using the devices consisted mainly of preparatory aid or adjustment of the devices.

Scattered throughout the classifications were ten patients who used assistive devices with excellent results, writing letters or taking notes in the schools which they attended. The majority of the patients, however, appeared to use the activity primarily for signature purposes. One patient became so adept in the use of his writing device that he was able to draw cartoons.

Typing was, in many instances, the chief mode of correspondence. Assistive devices were constructed in such a manner as to permit the patient to put them on unaided. If a cock-up type of splint was indicated, this called for additional aid. At times assistance was necessary to insert the paper in the typewriter, but from this point on the patient could take over the activity. Typing was executed by the hunt and peck method unless the patient had had previous typing experience and was familiar with the keyboard.

A standard typewriter was in common use and a remote control adapted electric typewriter was used on the wards. In 1956, a quadriplegic patient entered a creative writing contest and, as a prizewinner, received an electric typewriter which he donated to the hospital for patients' use.

Two patients became quite skilled in typing, one with typing sticks on both hands, the other using a one-finger stiffening type of device. Another patient in the C-7 classification obtained a position necessitating constant use of the typewriter. With the use of an eraser holder which was devised for him, he was able to fill the position successfully.

The locomotion and traveling activity. The patient's mode of locomotion or transportation is, of necessity, by propulsion of the wheelchair.

The cases under study were incapable of getting in or out of their wheelchairs without assistance, and positioning of the patient in his wheelchair was important to permit its successful operation. When adjusted comfortably in the wheelchair, the patient, in many cases, was able to propel his wheelchair independently. Operation went smoothly over flat surfaces and slowly with rest periods, in accordance with the muscle power which the patient had gained.

One of the main devices used to aid in the performance of this activity was the use of gloves to protect the hands and permit sufficient friction to propel the wheelchair forward. This was accomplished by having the rough side of the leather on the outer side of the glove come in contact with the smooth hand rims of the chair. Aid was necessary to put on and remove the gloves.

The chair rims were wrapped with electrical cord to facilitate propulsion; balloon type of tires were purchased by the patients to lighten the task; dorsal hand splints, or cleats, on wheelchair pedals were utilized for successful manipulation. In three instances, axles and hand rims on chairs were modified to allow these patients, who were unable to use both arms, to maneuver their chairs with one arm.

Propulsion of the wheelchair was performed by bearing down on the hand rims with the thenar eminences and pushing forward with trunk flexion aided by gravity.

The successful use of this activity gave the patients a greater degree of freedom and they were able to get about some areas of the hospital rather than being confined solely to the wards.

Although the car driving activity did not come within the province of the occupational therapy department, various straps and small parts of equipment were constructed in the clinic by the patient to aid in this activity. Through this means it was ascertained that, with special controls, one patient in the C-5 group, five in the C-6, and two in the C-7 group were able to drive cars. This information, however, is not to be construed as an accurate measure of the number of patients in this study who were able to drive cars since a complete survey into this activity was not conducted.

Miscellaneous hand activities. Of those patients sufficiently interested in reading activities, four used mouthpieces, this being the only activity which they were capable of performing unaided after reading material was positioned on a reading rack and the mouthpiece inserted. Ten patients requested a finger-type page-turner, while others were either able to turn the pages or lacked the interest in reading to attempt the activity.

Two patients showed an interest in communication through the use of the telephone, one being able to telephone without assistance, the other requiring a device for dialing purposes.

Twenty-nine patients required smoking aids, two of whom, for a time, required aids by remote control.

Other assistive devices consisted of an adapted can opener which four patients put to use on

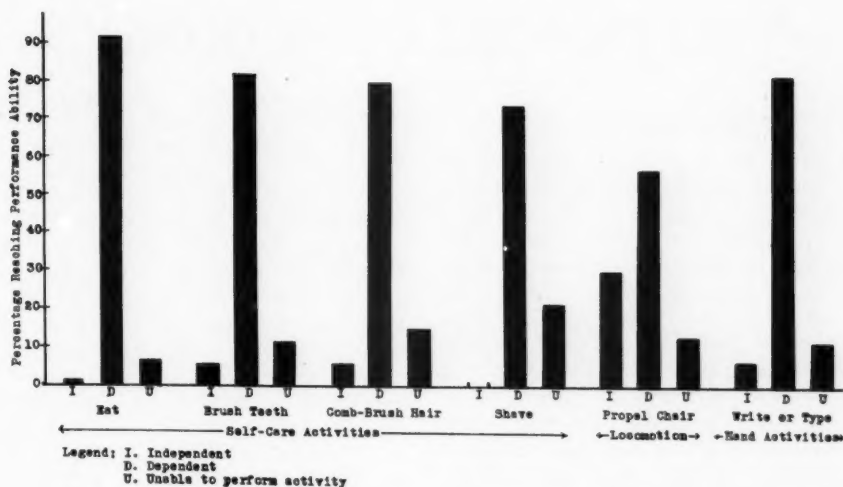


Figure 1. Composite Graph of Performance Ability

outings, a shoe polish brush, a nail file holder, extension and plastic knobs placed on radio or television sets, card holding devices, weighted chess sets and large checker boards, all permitting greater freedom in the use of the equipment and making the patient less dependent on others to enjoy some forms of everyday activities.

Analysis of activities. In the self-care activities, the eating activity ranked first in performance ability and the teeth brushing activity fell into second place. (See Figure 1).

The eating activity had the greatest percentage of patients able to perform the activity above all other activities included in the study. It appears, as Shear and Comarr stated,¹ that the basic desire of these patients was to feed themselves.

Although it may be assumed that if the patient was able to perform the eating activity, he should be able to undertake the task of brushing his teeth, a variance of six per cent appeared in these activities. While it is true that in both activities the arm is brought toward the mouth, the eating activity, figuratively speaking, stops there and the patient brings his arm down to rest briefly. The teeth brushing activity, however, begins at the mouth and the patient moreover must contend with the curve of the dentures, with the additional motions involved in performing this task and with the fatiguing factor. It is quite likely that the variance percentage were incapable of overcoming these obstacles.

In the hair combing or brushing activity, range of motion which a number of patients lacked played an important role in the performance of the task.

The shaving activity had the lesser percentage

able to perform the task and also the greatest percentage unable to perform this task above all others. Aside from the physical powers necessary to perform this activity, the writer believes the motivating factor remained low since it is socially acceptable to have the activity performed by a barber or an outsider. Furthermore, it must be remembered that this study was conducted in a hospital situation. Whereas with the proper set-up of equipment and fixtures for the convenience of the individual patient, the ability of several of the patients to accomplish the task unaided may have been possible.

Wheelchair propulsion rated high, particularly in independent performance. An important consideration in this activity may be the fact that it does require the patient to bring his arms up or in front of his body as do the other activities, hence this may contribute, in some measure, toward the successful performance of the task.

The writing and typing activities also ranked high. In the writer's opinion, the successful performance of either of these activities gives the patient a gratifying feeling of independence and power. Generally he is incapable of handling money but may be able to handle his monetary affairs through a checking account with the least assistance, provided he is able to write his name fairly legibly. If this writing ability improves, he may be able to write his own personal letters or handle other matters with a greater degree of privacy. However, if he is limited only to writing his signature, some typing skill will insure privacy in his personal affairs.

SUMMARY AND CONCLUSIONS

An investigation of the case records of one hundred and seven male adult traumatic quad-

(Continued on page 160)

NATIONALLY SPEAKING

From the Associate Director

Getting to Know Your Yearbook. Now that the 1958 *Occupational Therapy Yearbook* is in your hands, the chances are that you leafed through it quickly the first time to bring yourself up to date on the news of your friends—marriages, new positions, new addresses and other bits of information. Have you ever given thought to the significance of this book in relation to the growth and development of occupational therapy? You may be among those therapists who get to know the book from cover to cover, or you may only read those sections which hold the answers to the information you seek, thereby never being fully aware of the information compiled for your use.

To appreciate the development of the Association let us look back through the years to 1932 when the first *National Directory of Qualified Occupational Therapists* was published. This small book, measuring only five by seven and one-half inches, contained a listing of 318 occupational therapists in the main register while 14 names appeared in the secondary register. The information listed under each name was grouped under the main headings of "Training School or Qualifying Experience," "Present Position" and "Permanent Address." It is of interest to note that even at that time there were registered therapists listed in Canada, England, India and Puerto Rico. In addition there appeared a listing of officers, Board of Management and honorary life members of the Association as well as an amendment to the constitution, a statement of the purpose of the Association, and an explanation of the main register and the secondary register. The directory also mentioned that the Association, founded in 1917, was incorporated under the laws of the District of Columbia as the "National Society for the Promotion of Occupational Therapists." A few years later, however, the title was legally changed to the American Occupational Therapy Association.

Through the years the directory grew as the number of registered therapists increased. With the exception of the years 1944 and 1946, when supplements were issued, a new publication has been printed each year. In 1943 the directory became a yearbook with the addition of supplementary material of value to the therapists.

And so we return to 1958 to find the latest Yearbook listing 5,233 registered therapists and seven secondary registrants. Let's leaf quickly

through the pages at this time to see what additional material has been added over the years. The introduction, aside from giving some pertinent statistics and briefly listing the contents of the book, also explains the difference between registration and membership in the Association. This section is followed by pages listing the Association's officers, members of the Board of Management, House of Delegates, committees and headquarters staff. Occupational therapy schools and their directors are listed for your convenience as well as the "Essentials of an Acceptable School of Occupational Therapy." And in the event that you should wish to refer to the AOTA constitution you will find it located in the back of the book. We hope you are finding the cross reference index—maiden and married names—a practical change from the former method of cross reference. In the geographical listing of hospital, institution or agency with occupational therapy departments we are continuing to make every effort to note, whenever possible, the name of the director or supervisor of OT.

And last but by no means least, we come to the advertising section of the Yearbook. This portion of the publication should be of great interest to all therapists for it represents a group of advertisers whose products have an important place in the planning of treatment programs for patients. Have you really looked at this section thoroughly and thoughtfully to discover a new or helpful product? Look back over some of your earlier Yearbooks and Journals and note those advertisers who consistently display their interest in our profession. Note those firms which perhaps place new emphasis upon a well-known product. All these advertisers deserve consideration and support for in reserving advertising space they are helping to defray some of the costs of publication. Advertising in the Yearbook and *American Journal of Occupational Therapy* have steadily declined over the past few years due, in great part, to our lack of support. Some advertisers have failed to renew their contracts with us stating that they have had very little response from therapists. And so in closing, when you are again ready to purchase supplies or equipment for your department refer to your Yearbook and Journal advertisers first. They are waiting to serve you.

Helen C. Mathias, O.T.R.
Associate Director

From the Education Office

It is with pleasure that the education office announces the names of those examinees who successfully completed the January 31, 1958, registration examination.

*Adams, Jacqueline
Aehl, Susan S.
Allen, Gail A.
Aurit, Nancy A.
Barnes, Joyce A. N.
Barns, Eleanor K.
Bailey, Ronald B.
Bauman, Betty J. D.
Bayes, Pauline S.
Bearley, Norma J.
Betzenderfer, Mariana H.

*Blitz, Susan V.
Bohannon, Patricia A.
Brewster, Marilyn B.
Brocker, Debi F.
Bruder, Norma J.
Buckley, Barbara E.
Burnette, Carol R.
Carman, Joyce C.
Carothers, Norma J.
Christensen, Shirley A.
Clagett, Jean E.
Clauer, Carole J.
Clausing, Elnora M.
Clayton, Helen X.
Conner, Ardyce O.
Cooper, Jean E.
Cotter, Marcia K.
Craig, Carolyn Y.
Culp, Mary E. K.
Cunninghis, Richelle N. S.
Daher, Rita
De Angelis, Lucille I.
Desotelle, Marguerite L.
Dettmann, Judith A.
Dickerson, Carole A. S.
Dornacher, Diane
Eazer, Willard E.
Eckert, Elaine K.
Eckstein, Lisa F.
Falvey, Joan M.
Farnsworth, Lois M.
Geffroy, Josette A.
Gersten, Esther S.
Getto, Mercedes S.
Gillette, Kristin E.
Green, Jacqueline
Grodio, Rose Marie T.
Gruen, Hannelore
Gustafson, Patricia M.
Hallet, Dorothy M. F.
Hamilton, Rachel R.
Hammes, Irene F.
Hansen, Bonnie J.
Harper, Elizabeth A. K.
Harper, Sally L.
Hart, Karla E.
Hastreiter, Mary J.
Healy, Marjorie F.
Heyer, Janet P.

Hinegardner, Dorothy E.
Hohmann, Anne C.
Hopsia, Diane M.
Horak, Karen J.
Hotchkiss, Nancy N.
Howald, Margrit F.
Huber, Mildred E.
Hulseman, Joanna M.
Hulsey, Selette
Imayoshi, Jean
Indihar, Darlene M.
Izawa, Yoshiko
Jacobsen, Dorothy H. C.
Johnson, Joyce A.
Johnson, Nancy L.
Jones, Shirley M.
Kalb, J. Carolyn W.
Keene, Jeri M.
Kennedy, Mary L.
Kerr, Barbara J.
Kirschbaum, Roberta A.
Koram, Beverly R.
Kuhlman, Carol C.
Lachmann, Nancy J.
Leggett, Gloria
Leisy, Barbara A.
Long, Anne F.
Lund, Nancy A. W.
McCall, Janet E.
McCaun, Joan

*McCreary, Frances
McGuinn, LeRoy F.
McKinney, Joanne
McLean, Mary-Jane M.
McMahon, Judith A.
Mahoney, Joan P.
Maley, Margaret J.
Manasse, Paula J.
Manchee, Lois
Maynard, Elizabeth M.
Meredith, Susan R.
Milan, Alversa B.
Miles, Martha E.
Mintz, Naomi
Moore, Jean E.
Myer, Frances L.
Nathan, Carol
Nelson, Joyce P.
Nishida, Lillian
Nobiling, Janet B.
Nomura, Dorothy Y.
O'Connell, Sarah J.
Olmstead, Gail B.
Ott, Ardith A.
Ouradnik, Mary K.
Padula, Charlene M.
Pappas, Olympia A.
Peterson, Bonnie L.
Powers, Jo Ann S.
Pulanco, Tonya

Rector, Jane F.
Renneker, Gail A.
*Richardson, Laura I.
Riggs, Carol D.
Ritchie, Susan W.
Rizzo, Frances
Roossinck, Pearl A.
Rudd, Doris A.
Rumsey, Ann D.
Sather, Robert B.
Schmalz, Harriett A.
Schneider, Evelyn G.
Schupbach, Linda L.
Schwer, Louise A.
Seelhammer, Shirley J.
Serve, Martha J.
Shearin, James L.
Shellhaas, Carol A.
Sheppard, Roslyn M.
Shrebnik, Nancy
Shrebnik, Sue
Simons, Nancy J.
Simpson, Doris B.
Skonnord, Jo Ann E.
Smith, Andrea B.
Smith, Joan M.

Smith, Wynogean
Stapleton, Shirley L.
Stine, Diane E. U.
Sullivan, Donna J.
Theiler, Patricia I.
Trusell, Patricia P.
Ullom, Sandra M.
Vezie, Mary S. B.
Vickers, Patricia J.
Vincent, Joan S.
Viti, Lucille E.
Wallis, William D.
Wan, Patricia B.
Warnemuende, Karolyn J.
Washburn, Janey M.
West, Barbara K.
White, Barbara J.
Widick, Sara
Wilcox, Carolyn M.
*Wise, Kathryn F.
Wittenberg, Marian K. W.
Wolpert, Patricia A.
Wright, Reba M.
Wurster, Marlo J. S.
Young, Beverly S.
*Completed With Honors

Virginia Kilburn, O.T.R.
Educational Secretary.

A conference on rehabilitation and special education is scheduled August 20, 21 and 22 at the University of Saskatchewan, Saskatoon, for workers from Montana, North Dakota, South Dakota, Wyoming, Alberta, Saskatchewan and Manitoba.

A special institute on the problems and developments in the fields of occupational, physical and speech therapy will be a feature of the three-day meeting.

For complete information write to:

G. Allan Roher
Coordinator of Rehabilitation
Province of Saskatchewan
Regina, Saskatchewan.

SUMMER COURSE

A workshop on the rehabilitation of the adolescent and adult mentally retarded will be offered July 7 to July 25 by Teachers College, Columbia University, New York City, and the Association for the Help of Retarded Children, Inc. The workshop will orient participants in the philosophy, principles and techniques of rehabilitation of the mentally retarded with emphasis on vocational adjustment.

The workshop may be attended for college credit or not, and a limited number of stipends are available. For further details write:

Dr. Abraham Jacobs
Box 35
Teachers College, Columbia University
New York 27, New York.

People You Should Know



MISS IRENE HOLLIS, O.T.R.

The first field consultant in rehabilitation for the American Occupational Therapy Association is Miss Irene Hollis, O.T.R., of Texas. The appointment was made possible by a grant from the Office of Vocational Rehabilitation of the U.S. Department of Health, Education and Welfare which recognized the importance of occupational therapy in the total rehabilitation of patients.

The position was created to help with both clinical and organizational problems which are increasing throughout the country due to the rapid growth of rehabilitation services and improved treatment programs for patients. The broad field of physical disabilities, in which Miss Hollis has specialized, is the first area in which our consultative services will be available on a national scale.

In her capacity of field consultant, Miss Hollis will travel to rehabilitation centers, hospitals, universities with occupational therapy departments and other institutions needing her advice and will serve in a liaison capacity with federal, state and other agencies in the health field. She will also develop guidance materials based on her findings.

She comes to her new post from the Houston Veteran's Administration Hospital of Texas with a varied experience on which to draw as rehabilitation consultant. She was graduated with a degree in home economics from North Texas State College at Denton, Texas, studied occupa-

tional therapy under the Army's training program at the University of Southern California and took post graduate specialty courses which included one in polio at the Georgia Warm Springs Foundation where she became assistant chief of occupational therapy.

She was director of occupational therapy at the Wolff Home Polio Rehabilitation Unit at Houston, assistant professor in the occupational therapy department of the Texas Woman's University at Denton, on the staff of the Brooke Army Medical Center at Ft. Sam Houston and the Amputee Center at McCloskey Army Hospital at Temple, all in Texas.

EDITORIAL



TRIBUTE TO DR. DUNTON

Today is immediate, tomorrow is a challenge. Our life is a series of todays that lead to tomorrow. It is also a series of yesterdays. Sometimes we forget those yesteryears in our concern for the future but those yesteryears made today and tomorrow possible.

Our yesteryears in occupational therapy are relatively few. But our growth until today is a tribute to those who led, who plotted their todays and tomorrows with foresight and imagination so that today we benefit from the development inevitable from solid planning and constructive action in each day gone by.

History is those yesteryears and in reviewing occupational therapy history we were fortunate in our early sponsors who developed techniques that gave us our basic precepts. To them we are ever grateful.

This gratitude can rarely be expressed except in our conduct of today which will further the work turned over as our responsibility. But in professional development, spans are preserved so that those who led the way are followed by those who also grasp the idea and by those who are learning the concepts. We in occupational therapy are fortunate to have an early sponsor interpreting the yesteryears in terms of today for our future goals. He is still an active leader in the interest of occupational therapy. He helped form the National Society for the Promotion of Occupational Therapy, known today as the American Occupational Therapy Association. He established the *Journal of Occupational Therapy and Rehabilitation* and was its editor. He is still an associate editor of the *American Journal of Occupational Therapy*. In addition he has written several books on occupational therapy.

Last November he was honored at our annual conference by receiving the Award of Merit, the highest honor of the American Occupational Therapy Association, which was given in recognition of his outstanding contributions to the profession over the years.

His interest stems from 1895 when, as assistant physician at the Sheppard Asylum (now the Sheppard and Enoch Pratt Hospital), he recognized the benefits derived from occupational therapy. He contributed actively as a past treasurer and president of the American Occupational Therapy Association, served on its Board of Management and is an honorary life member.

He believed in occupational therapy and his interest and inspiration led us in the formative years of our profession. He is still lending us his interest and support and we who are now benefiting from his patronage not only owe him thanks for his guidance but dedication to the goals he outlines for our future.

We hope his past "tomorrows" live up to his expectations and that we can continue to achieve the "tomorrows" he still envisions today. We gave him the AOTA Award of Merit to show our appreciation for his devoted interest but no award will ever compensate him for the responsibility and ideals he entrusts to us. With his continued guidance, we hope to be worthy of his faith. Thank you, Dr. William Rush Dunton, Jr.

SISTER JEANNE MARIE

Interest, enthusiasm and sincerity are the attributes which made Sister Jeanne Marie Bonnett one of the leaders in the profession of occupational therapy. Her recent death will be a loss.

Although she received her doctorate in 1925, Sister Jeanne Marie obtained her occupational

therapy certificate in 1945 in order to qualify her to direct the department of occupational therapy at College of St. Catherine. And in the relatively short span of thirteen years has become an influence and a leader serving not only on the educational committees but on the Board of Management of the American Occupational Therapy Association. Her graduate study and wide experience in education made her an authority of help and value to all phases of our profession.

Although her death will be a loss to all, her influence will remain to guide and direct us for many years and our profession has been enriched because of her enthusiastic contributions.

In Memoriam

Miss Florence Ash
Philadelphia, Pa.
Deceased, March, 1957

Sister Jeanne Marie Bonnett
St. Paul, Minnesota
Deceased, May 10, 1958.

Miss Ruth M. Bradshaw
Lynbrook, N. Y.
Deceased, November, 1956

Miss Grace M. Cassidy
Nickleville, Pa.
Deceased, December 4, 1957

Mrs. Carlene Ann Wertz DeMoor
Grand Rapids, Mich.
Deceased, November, 1957

Miss Delores Dietrich
Louisville, Ky.
Deceased, December 29, 1957

Miss Margaret A. Duros
Wernersville, Pa.
Deceased, 1957

Miss Martha Jean Gill
Orlando, Fla.
Deceased, February, 1958

Mrs. Alice Kelley Miller
Feasterville, Pa.
Deceased, April, 1957

Miss Pattie E. Pumphrey
Gainesville, Fla.
Deceased, September, 1957

Mrs. Ruby Everts Schevlin
Washington, D. C.
Deceased, December, 1956

Miss Kathryn Wellman
Philadelphia, Pa.
Deceased, February, 1958

FEATURED O.T. DEPARTMENTS

ASSIGNMENT IN BRUSSELS

Barbara E. Neuhaus, O.T.R.

When I left the States last September to begin an assignment as Fulbright lecturer in OT at the Centre de Reeducation in Brussels, Belgium, I knew that a challenging opportunity waited for me on the other side of the Atlantic, but I never dreamed that my year's stay abroad would offer such varied experiences, professionally and personally, in which I certainly learned as much, if not more, than I was able to give in return.

There are actually many similarities in our way of living and that of the Belgians—if such a comparison seems feasible between the United States and a little country whose population is slightly less than that of Illinois, its area somewhat larger than Maryland. The standard of living is high, people are striving toward greater mechanization, and the resulting sphere of interests is not too greatly separated from ours. However, externally and structurally there are characteristics which were often difficult to understand, but which are so much part of the Belgians that one had to accept these differences in order to set up a working relationship with the people.

For example, as a result of political and geographical influences throughout the past centuries, the Belgians have kept two languages (French and Flemish) alive in their country, and although both are taught in school—one as the mother tongue, the other as a "side line," depending on the area—the Flemish almost all speak French, while the Walloons (French) make little effort to speak Flemish in return. Therefore, everything in public life must be duplicated. Needless to say, the bi-lingual problem entered directly into my work as well, and often it seemed the greatest barrier towards consolidation of efforts in the therapy field.

As a field of study, OT is in the very beginning stage; that is to say, in one of the PT schools for men (another type of division in education), a course in OT has been started, and during the past year several young men were spending affiliations at the Centre de Traumatologie, an excellent rehabilitation center in Brussels. The OT department there was staffed and directed by two or three English OT's, one of whom described the difficulties of training young men in craft techniques, when their prime interest remained PT, since there are as yet no possibilities of earning one's living with OT except in a general medical or rehabilitation situation. Toward the end of the year I heard rumors

that one of the other PT schools in Brussels—this one French, for girls—was planning to set up a course in OT this year; however, although I met the director of the school, she never mentioned her plans to me, and I could not investigate the issue further. I was told on arriving that OT as a trained profession was as yet nonexistent in Belgium, and that part of my assignment would be the teaching of a course in OT techniques, an assignment that narrowed itself down almost exclusively to CP techniques.

The Centre de Reeducation in Brussels is the first of several CP centers that now exist in Belgium. It was started about three and one-half years ago by two physical therapists, Madame Wilkin and Mademoiselle Delaet, the latter a Fulbright grantee to the States in 1951 to study advanced PT techniques who thereby became interested in cerebral palsy. The present facilities in a row-house in Woluwe St. Lambert, one of the sections of Brussels, were opened with the idea of accepting ten in-patients and as many out-patients as the staff could treat. Dr. Albert Simar, a pediatrician who received his specialized training in France, became the medical director, and an orthopedist and neurologist also joined the staff. There were two physical therapists and several PT assistants or aides, a speech therapist (Belgian trained, without specialization), a psychologist, a nursery-school-primary teacher, and several assistants who did some self-care activities with the children. Everyone was working very hard and conscientiously in her specialty, but with little knowledge of what the children did in the other therapies.

The physical set-up of the Centre is not ideal for the treatment of handicapped children, but the administration was aware of this and told of their hopes to be able to move into more suitable quarters some day. There is a main house, the ground floor of which is taken up by the director's office, the speech therapy room (without windows), the dining room (too small to seat comfortably the 18 in-patients, plus the several out-patients who also eat their lunch there each day), the kitchen, and a washroom. On the second floor (reached by a long, steep staircase) are the really attractive dormitories, the bathroom, and the room of the chief nurse. The third floor has rooms for some of the other personnel. Separated from the main house by a cobbled court-yard with a lovely old cherry tree (this is the out-door recreational area for the children, and their sandbox is also here) is the therapy building—one small room for PT treat-

ments and a large gym where functional PT, OT and recreation had to take place. This building used to be a storage place for wine, and the heating and airing facilities, except in the small PT room, left something to be desired. The furnishings, including a large standing table and parallel bars, were well chosen.

It was into this situation that Miss Marianne Van Duzer, a speech therapist from the CP clinic run by the National Society in Washington, D. C., and also the recipient of a Fulbright lecture grant, and I came in October, 1956. We were pleasantly surprised by the existing facilities and by the interest and cooperation that we met right from the start. I was told that my duties would be to set up a department, train a particular girl with an excellent nursery school background to take over the department in July, to act as general advisor with Miss Van Duzer in organizational matters, and to teach a course later on in OT techniques. Brussels is primarily French-speaking, and all of the staff with the exception of the directors (who spoke good English) spoke only French, so that all work was carried on in that language, a fact which did not come as a surprise to me, but which nevertheless created difficulties at first, since my French was far from fluent.

After seeing how enthusiastic and receptive the administration was, our first organizational suggestion was to inaugurate medical staff conferences once a week which were to be attended by the entire professional staff with the medical director and the neurologist, and at which time each therapy, nursing, psychology, and education worker would submit brief written reports to be read aloud to the group. From the beginning the conferences proved to be of great help to the staff—it was most gratifying to notice how the attitude changed from individual thinking to a group approach, how shyness gave way to free interchange of ideas, but most of all how the lukewarm participation of the neurologist turned into a real interest and support of the program. Of course, when we left there was still need for improvement in the system of the conferences; for example, many of the recommendations made by the doctors and the various staff members remained theoretical, and little effort had been made to include the parents in the conferences or the child's program in general.

I was given a free hand to set up an OT department. The greatest obstacle was the lack of space—the familiar cry of most OT's. In this case, PT, OT and recreation all had to take place in the same large room—without windows, but well-lighted and cheerfully decorated—and by 3:30 in the afternoon, both children and

adults were worn out by the undercurrent of noise and movement that could not be shut out and that definitely interfered with the attention span. Except for the three or four children who might at one time be at speech, psychology or instruction groups, all the youngsters (as many as 21 at one time) stayed in this room during therapy hours (9:15-11:30, 2:00-4:30), which gave the aspect of a three-ring circus. However, since this factor will continue to exist under the present facilities, we tried to make the best of it. By means of a definite schedule for each child we cut down on some of the confusion, and even the children knew after a while, that if they were not assigned to a therapy at a certain hour, they were allowed to play freely or under direction in the area of the room set aside for that purpose. In addition, we screened off a small corner of the room for individual treatments.

Because of the physical set-up, I found that it was easier and more practical to do feeding training during meal times, a fact that may bring criticism from some parts. However, I felt that the example of the other children, the relative amount of quiet in the dining room, and the naturalness of the situation outweighed the disadvantages of this method. Since special feeding equipment was almost non-existent and feeding materials had to meet the usual standardizations of in-patient set-ups, we kept adapted equipment at a minimum; however, all staff members were cooperative about giving the right equipment to each child. On several occasions we gave instruction in feeding techniques to all those who fed the children at one or more meals; this was as successful as such instruction usually is, depending on the interest of the listener.

The dressing activities of the children could not be practically controlled as easily as the feeding; nevertheless, for an in-patient situation where time and help are always at a minimum, the children were permitted to do quite a bit of their own undressing and dressing.

Aside from the functional OT program, I set up a recreational program with group games one afternoon a week, and several "real-life" experiences, such as cooking apple sauce and playing store. This proved to be very helpful in bringing out the group consciousness of the children, who were between the ages of two and twelve (out-patients up to age 20) and with varying degrees of handicap.

In December I began to train the young nursery-school teacher who has taken over the department. She was a most rewarding pupil with an incredible amount of talent and interest, and of great help because of her boundless

enthusiasm, which, I found, was the hardest thing to achieve in a foreign language. My other assistant in the department was a girl who is a congenital bilateral leg amputee with two prostheses; she did a wonderful job at getting around and at occupying the children when they were not in therapy.

By February we were supposed to be sufficiently acclimated to language and working conditions to teach the two-months' evening course of seventeen sessions at two hours each. (There were two separate courses in OT and speech therapy, held simultaneously.) The speech course was open to speech therapists only, but for the OT course I had to accept almost anyone who showed sufficient interest and had some sort of medical or educational background. The result was that of my eighteen students only six were actually working with CP's—two were my assistants, two others were aides at the Centre, one was a PT, and the sixth, a dental technician and husband of the director of another center who was doing "some OT" there. All the other students took the course for individual and rather original reasons (four were PT's who had been promised a raise after completion of the course.) There were also psychologists, a medical secretary and a social worker.

In the beginning the preparations seemed insurmountable since I had to write out my lectures first in English, translate them into French, and then receive assistance with the correction of grammar and style. The first several sessions the students appeared before me as a impenetrable wall. They tried to take down every word I said, and when I suggested that they listen more instead of writing so much, they closed their books and demanded stenciled copies of the lectures. (Apparently this is the practice in some courses in Belgium.) However they gradually relaxed, and at the end of the two months I was really sorry the course was over. Included in both courses were seven hours of neurology (by the neurologist), and several lectures by other members of the staff. At the completion of the course, the students had oral examinations given partly by the neurologist and partly by me, and then each one had to pass two and one-half days of "affiliation" at the Centre. All the students who fulfilled these requirements were given "diplomas"—typed statements signifying that he or she had completed the course in speech therapy or OT at the Centre. The course was an invaluable experience to me, and if the students learned half as much as I did, then I might be satisfied.

In relating my experiences in Belgium I cannot stress enough the warm-hearted spirit with

which we were received at the Centre. Since it was a private institution without a governing board to whom the directress was responsible, she was able to make all decisions herself and to act on them promptly. In this way, all our suggestions—if they seemed practical under the existing conditions—were accepted and put into practice as soon as possible. Everyone, from the medical director to the cook, helped us to feel at home in our new environment. Even the children cooperated well with all our efforts, which often must have seemed strange to them, and all enjoyed correcting our mistakes in French.

I am extremely grateful to all the people who helped me to achieve this experience, and I only hope that many other OT's will have a similar opportunity.



Communications Out of Date?

Plan to come to New York City! October 21-25 are the dates. Hotel New Yorker the headquarters.

COMMUNICATIONS will be the theme of the 1958 institute-conference to be held at the Hotel New Yorker in New York City. Communication—the basic tool of the occupational therapist—will be explored from the point of view of the anthropologist, psychologist, neurophysiologist, as well as the mass media approach.

A "See it Now" structure of the program will include studio presentations and "rumour clinics" with ample opportunity to consider specific OT application in small round table discussions. Watch for the program in greater detail in the next issue. A "Getting to Know You" coffee hour is scheduled before the formal opening of the institute-conference.

Pre-conference meetings which are open to all members are scheduled from Friday, October 17, through Monday, October 20. Exhibits and registration will open formally on Monday at 6 P.M.

Something different is being arranged for school get-togethers this year. School "nooks"—space to meet, formally or informally and leisurely—will be arranged, and individual school groups may plan breakfasts or luncheons as desired with the hotel.

The banquet, preceded by a cocktail party, will be held on Wednesday night, and a most unusual fashion show will be a special feature at the banquet.

With the United Nations as a focal point, Thursday will be "Wide-Wide World" day. The World Federation of Occupational Therapists meeting is scheduled in the program, rehabilitation around-the-world will be looked at, and a tour of the United Nations building is also included.

Field trips combined with sight-seeing will be arranged on a half-day or full-day basis on Friday. There will also be a desk to help you arrange for such things as a boat trip around Manhattan, perhaps a tour of the night spots, or even shopping sprees for those who plan to come early and stay late.

Full pre-registration is being inaugurated this year at the following rates:

Registered, AOTA members:	Three days—\$12 Daily rate—\$ 5
Registered, non-members:	Three days—\$15 Daily rate—\$ 6
Allied professional groups, Associate members:	Three days—\$ 9 Daily rate—\$ 3
O.T. students, AOTA members:	Three days—\$ 3 Daily rate—\$ 1
O.T. students, non-members:	Three days—\$ 6 Daily rate—\$ 2
Students of allied fields:	Three days—\$ 3 Daily rate—\$ 1
Guests, foreign delegates, foreign students:	Complimentary

Wrist Splint . . .

(Continued from page 139)

back of this rigid extensor throughout its entire length will make it very strong.

Photographs of the splint are shown in Figure 2. This splint is not difficult to make, is light and comfortable to wear, is quite acceptable in appearance, and is strong, durable, and functionally satisfying.

CONCLUSION

The static wrist extension splint will hold the wrist statically in the desired position with a minimal amount of material in the palm so as not to interfere with grasp. There will be

some cases where pressure in the palm will be too great to rely upon the two small pressure points of the holders (B), but in the majority of instances pressure, although uncomfortable at times, will be tolerated more readily than an unwieldy palmar plate.

SUMMARY

The splint has a variety of special adaptations which may be used for patients with wrists that are particularly tight, hands with sensitive palms, or forearms that are tender and sore. However, we have found these adaptations are necessary far less often than formerly anticipated. We believe that it is sufficient to say that the bulky braces designed especially for comfort are necessary in some cases but should be avoided if possible. These braces usually limit function to a degree and should be considered positional rather than functional. The main value of a hand brace lies in its use and when a hand possessing any function is handicapped by a bulky brace, the patient will either give up the brace or the function. This same patient would find acceptable the type of static wrist splint described here.

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(Continued from page 129)

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(Continued from page 138)

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DELEGATES DIVISION

ILLINOIS

Alternate Delegate-Reporter, Margaret Earlenbaugh Hollowell, O.T.R.

The Illinois Occupational Therapy Association has shown marked progress in the organization of districts. Much credit must be given to the district formation chairman Dorothy Jeffrey, O.T.R., who has stimulated her committee to make many trips throughout the state to help encourage district meetings. One meeting of all combined districts was held in November at Springfield when the delegate's report from the American Occupational Therapy Association conference was given. A second combined meeting will be held April 19th as the annual business meeting. As district formation continues the state newsletter becomes more valuable, and Jerry Johnson, O.T.R., as editor has done outstanding work in coordinating information.

Plans are rapidly unfolding for your annual conference in Chicago at the Morrison Hotel, October 18 to 23, 1959, under the direction of Catherine Hoffman, O.T.R.

The pediatric exhibit made through combined efforts of Wisconsin and Illinois Associations was shown at the AOTA conference in Cleveland and continues to be shown at conventions. Any other states wishing to use this exhibit are encouraged to request it.

OFFICERS

President Jean E. Prebis, O.T.R.
 President-elect Camille Moore, O.T.R.
 Secretary Corinne Pezzati, O.T.R.
 Treasurer Janet Anderson, O.T.R.
 Delegate Vacancy
 Alternate delegate Margaret Earlenbaugh Hollowell, O.T.R.
 Sub-alternate delegate Jane Van de Bogert, O.T.R.

GEORGIA

Acting Delegate-Reporter, Nina Crawford Brown, O.T.R.

The Georgia Occupational Therapy Association held regular quarterly meetings this past year. Perhaps one

of the most outstanding meetings was the October meeting, made possible through the generosity of the Georgia Society for Crippled Children and Adults. A portion of their annual meeting program was of special interest to the occupational and physical therapists of this state. The presentation concerning upper extremity amputees was the direct result of a joint planning committee. Mr. John Steensma of the Michigan Crippled Children's Commission was guest speaker and demonstrator. Miss Patricia Kelsey of Warm Springs contributed a paper describing the role of the occupational therapist in the fitting and training of upper extremity prostheses.

Three of the members attended the American Occupational Therapy Association conference in Cleveland. Following this the delegate, Miss Mae Hightower, reported on the conference at a special meeting of this state organization. Miss Wilma West's financial report was read and the accompanying slides shown.

This state has accepted as a project the investigation of obtaining group insurance for malpractice protection. The delegate, Miss Mae Hightower, had been appointed chairman by the House of Delegates, to form a committee to study this question. The project is currently being handled by three sub-committees within the state and a report is expected to be ready for presentation at the next annual meeting of the House of Delegates.

Two new departments have been opened in the state this year, one at Talmadge Memorial Hospital in Augusta and the other in the new Cerebral Palsy Center in Columbus. The department at the Aidmore Children's Hospital, Atlanta, has been reopened.

OFFICERS

President Muriel F. Driver, O.T.R.
 Vice-President Donna Rigdon, O.T.R.
 Secretary-Treasurer Irene Perkins, O.T.R.
 Delegate Nina Crawford Brown, O.T.R.

MINNESOTA

Delegate-Reporter, Mary Van Gorden, O.T.R.

The Minnesota Association continues to meet every other month, rotating the meeting place among area occupational therapy departments. The membership list now includes: 73 active members; 21 associates; 12 students; and 2 honorary members.

The Association's fourteen committees have had a busy and productive year. The standards committee has provided help in setting up occupational therapy departments in five institutions within the state. The committee on recruitment has sent career folders to 500 high school counselors and is again making plans to participate in the annual Careers Day at St. Thomas College. Several departments are again offering Girl Scouts an opportunity to earn a senior bar as occupational therapy aides. During the past year, the placement committee processed 30 applications for jobs and 15 requests for therapists.

Members of the Association journeyed north to Duluth in July to attend a picnic as guests of the new Arrowhead District of the state association. In November, the state's first joint OT-PT meeting was held. Highlighting the year's program was the recent Techniques Fair, which was held at the Minneapolis Veterans Administration Hospital.

At the annual meeting in May, the Association will present its first two \$100.00 student scholarships. In that month, occupational therapists will again attend and participate in the Upper Midwest Hospital Conference in Minneapolis.

The Association wishes to announce that copies of Kooiman's *Bibliography of O.T. Literature* are available, free, to all state special studies committee upon request. AJOT binders are still available (\$3.50 plus 25c postage) from Mr. Tom Crowe, Anoka State Hospital, Anoka, Minnesota.

OFFICERS

President Evelyne Eichler, O.T.R.
Vice-President Helen Dahlstrom, O.T.R.
Secretary Marilyn Roegge, O.T.R.
Treasurer Marlys Mitchell, O.T.R.
Delegate Mary Van Gorden, O.T.R.
Alternate Delegate Marion Eliason, O.T.R.

NORTH CAROLINA

Delegate-Reporter, Cornelia Anne Watson, O.T.R.

The North Carolina Occupational Therapy Association became officially affiliated with the American Occupational Therapy Association in October, 1957. Prior to that date, we had several meetings, all geared towards the organization of this new association.

With the efforts of five therapists in the Durham area last January all of the occupational therapists in North Carolina listed in the American Occupational Therapy Association yearbook were contacted. In February, thirty therapists expressed their interest by attending an organizational meeting. Two succeeding meetings were held, following the preparation of a constitution in May, and officers assumed their duties at the October meeting.

There is an almost equal distribution of hospitals with therapists in the eastern and western parts of the state. Major emphasis this past year has been on organization and formation of committees. We have twenty-two active members, eight associate, and seventeen inactive members (of these twelve are not working). We anticipate future growth as an integrated organization and plan to concentrate our present efforts towards recruitment of occupational therapists as well as prospective students.

The first official meeting was held in Durham in January, 1958, with the Duke Hospital Upper Extremity Amputee Clinic team presenting a panel discussion on aspects of selecting, fitting and training amputees.

OFFICERS

President Ruth Zieke, O.T.R.
Vice-President Esther Breeze, O.T.R.
Secretary-Treasurer Beverly Gaines, O.T.R.
Delegate Cornelia Anne Watson, O.T.R.
Alternate Delegate Jutta Hinnom, O.T.R.

NORTHERN NEW ENGLAND

Delegate-Reporter, Jacquelin L. Wright, O.T.R.

For the past year the association of the tri-state area of Maine, New Hampshire and Vermont continued with its objectives of maintaining high professional standards, promoting the use of occupational therapy, and recruiting new members to the profession. There were ten associate members and twenty-one active members at the beginning of the year with a decrease of three associate members and five active members occurring during the year due to marriage and transfer out of the area.

There were four meetings in the spring to fall months with a newsletter published prior to each meeting. An annual rummage sale was held to increase the scholarship fund while also helping with general expenses.

For recruitment purposes, the position of recruitment chairman was established and contacts were made with interested persons. One project of great recruitment value was the establishment of a program at the New Hampshire State Hospital whereby the Girl Scouts could

earn their OT badges. This generated a good deal of interest among the girls and the credit goes to Miss Eileen Dixey, O.T.R.

In order to stimulate interest in OT and the functions of its local association, an effort was made to make its newsletter of broader interest and greater educational value. It was then decided to send it to hospital superintendents to keep them informed of the association's activities.

The greatest accomplishment of the NNEOTA has been that of keeping its members informed of accomplishments in allied fields as well as in their own profession. Speakers have been presented at each meeting from centers or institutions treating the mentally ill, the mentally retarded, and the physically disabled, and such subjects have been included as the biochemistry of mental illness, methods of research, and the types of psychological testing. At one meeting a panel was assembled which represented five New Hampshire institutions devoted to treating the emotionally disturbed adolescent.

OFFICERS

President Patricia Calef, O.T.R.
Vice-President Eleanor Kyle, O.T.R.
Secretary Eleanor Chernewski, O.T.R.
Treasurer Lois Marler, O.T.R.

WASHINGTON

Delegate-Reporter, Pauline C. Arvesen, O.T.R.

The Washington State Occupational Therapy Association has been working hard to build up the membership attendance at the monthly meetings, which alternate between Seattle and Tacoma. Interesting meetings have been planned by our two vice-presidents with the results being interesting speakers, work shop sessions and visits to new clinics.

One of the outstanding meetings was held in November with Dr. Alfred Sheridan, a noted plastic hand surgeon of the Northwest, who spoke on various hand problems and occupational therapy, using slides for illustration.

The ninth annual International Occupational Therapy and Physical Therapy Conference was held in Vancouver, B.C., with the therapists attending benefiting from the lectures and tours of clinics.

This Association has been working hard to build up the treasury so we can continue awarding scholarships to College of Puget Sound students. They had to be discontinued this year but the Association is in hopes that with more sales on the booklet entitled "Original Designs" (which sells for \$1.00 and can be mailed to any part of the country on request) they will be able to resume their project soon.

The recruitment committee has been busy giving out brochures and speaking to high school students in the state and they are in hopes they will have the recruitment film to show soon.

We have the Western National Rehabilitation Conference in Seattle in May and the National Physical Therapy Association meeting in Seattle in June to look forward to.

OFFICERS

President Pat Brittain, O.T.R.
Vice-Presidents Luba Faris, O.T.R.
..... Shirley Dunn, O.T.R.
Secretary Merle Dingfield, O.T.R.
Treasurer Betty Coulter, O.T.R.
Delegate Pauline C. Arvesen, O.T.R.
Alternate Delegate Nancy Sanzenbach, O.T.R.

Reviews

THERAPEUTIC EXERCISES FOR THE TREATMENT OF THE NEUROLOGICALLY DISABLED.

Harold J. Brenner, M.D. Springfield, Ill.: Charles C. Thomas, 73 pp., 1957, \$3.50.

This neat little book is a text for corrective therapists and corrective physical educators. It includes a good account of the history of corrective therapy as an outcome of the Army's program for physical reconditioning in World War II.

Graded types of exercise (passive, assistive, active and resistive) are presented with some attempt to explain goals and media appropriate for gym-type exercise. Cross education, heavy resistance and confusion motion are briefly mentioned as being special neurophysiological techniques.

The following disabilities are rather superficially explained in terms of history and etiology, symptoms, prognosis, corrective therapy and goals or objectives: hemiplegia, multiple sclerosis, Parkinsonism, poliomyelitis and polyneuritis.

This book is an example of beautiful organization, printing and illustrating. It does, however, treat therapeutic exercise for neurological conditions on a much too superficial basis to be of value to the occupational therapist.

—E. Hillger, O.T.R.

THE MOON IS FULL. Aileen Adair. New York:

Philosophical Library, Inc., 1957, 200 pp., \$4.75.

The author tells of experiences she had in various types of English mental institutions where she worked while gaining background and experience for taking an examination for a diploma in psychological medicine.

The major emphasis of the book is placed on the types of administrators, doctors, nurses and other staff members in the different hospitals. The motivations that lead the personnel into this type of work are explored. The picture given of the interpersonal relationships of the staff members is most interesting.

—Eunice Ford, O.T.R.

RUGWEAVING FOR EVERYONE. Osma Couch Gal-linger and Josephine Couch Del Deo. Milwaukee:

The Bruce Publishing Company, 1957, 294 pp., \$6.50.

This book was written to provide a basic manual of instructions for rug designing and weaving. Methods and designs are given for producing both traditional and contemporary patterns in pile, tapestry, needlework, and woven rugs.

Clear written directions and excellent illustrations show and tell how more than thirty types of rugs can be made.

—Eunice Ford, O.T.R.

HANDMADE RUGS. Kathryn A. Marinoff. Milwaukee: Bruce Publishing Co., 93 pp, 1957, \$1.75.

A well-illustrated, detailed book on the making and maintenance of braided, hooked, woven, crocheted, shirred, tufted, cross stitched and pieced rugs. Two distinctive values of this book are (1) the directions for speeding the tedious process of cutting strips for braiding or weaving rugs and (2) directions for replacing parts of homemade rugs when a section becomes damaged or worn or a new color scheme is desired.

CLINICAL EVALUATION OF SCOLIOSIS. J. C.

Risser, M.D. *The Journal of the American Medical Association*, 164:2 (May 11) 1957.

This paper reports factors to be considered in the clinical evaluation of scoliosis, from recognition of the

deformity, to determination of whether it be postural or structural, and finally to measures of correction.

Without treatment the deformity is apt to increase with vertebral growth. Segmental vertebral growth is directly related to an increase in curvature: slow growth from age 6 to 10 years, rapid growth from 11 to 15 years. The condition of the bony structure will also influence the growth rate and pattern of deformity.

Corrective measures for structural scoliosis include traction and lateral bend, as in a turnbuckle or localizer body cast. To maintain correction obtained by casting, surgical immobilization or fusion of the entire area of the curvature is said to be necessary. The average amount of correction is reported to be 25 degrees so that percentage-wise better results are obtained in the smaller curvatures.

Precautions in immobilization or surgical procedures are discussed, with reasons for possible failures in maintaining correction. Examples are cited by the author.

—Dorothy R. Street, 1st Lt., AMSC.

TENDON TRANSPLANTATION IN REHABILITA-

TION. William T. Green, M.D. *The Journal of the American Medical Association*, 163:14 (April 6) 1957.

Tendon transplantation as a subject of controversy and research is reviewed and certain primary indications for transplantation are set forth. It is essential that the muscles to be transplanted be more important in total function as a transplant than in their original position. In remaining musculature, too, a balance must be preserved.

Muscles must be evaluated for possible transplant. Muscle pull must be direct so that it can be transmitted effectively for the new action. Strength must be good or better, so that function can be improved.

Among the variety of techniques in tendon transplantation, certain basic principles appear in surgical procedures. (1) A transplant must not be required to work against a contractual deformity. (2) A straight line of contraction must be developed from the origin of the muscle to its new insertion, and passage space for the tendon must be adequate. (3) Bony insertion of the tendon is to be preferred to insertion into a tendon or other tissues, in the lower extremities. (4) The tendon must be inserted under sufficient tension to hold the part in the desired position during maximal range of contraction. (5) Support for the transplant should be in a position that permits the tendon to relax and so reduce this tension.

Careful thought, it is emphasized, must be given to the postoperative care and training of the patient if the tendon transplant is to be fully successful. With proper preoperative planning and efficient postoperative training, tendon transplantation can produce decided functional improvement. It is on this basis that its effectiveness is to be judged.

—D. R. Street, Lt., AMSC.

A GLOVE-TYPE EXTENSION HAND SPLINT. Frederick Modern, M.D., George Devins, R.C.T., and John Russey. *The Journal of the American Medical Association*, 165:3 (September 21) 1957.

A "glove-type" extension hand splint has been developed by the physical medicine and rehabilitation service of the Veterans Administration Hospital at Long Beach, California, and recently released.

In this splint, the fingers of the glove are replaced by individual "fingerlings" on the dorsal surface. Leather tunnels in each fingerling permit the insertion of metal stays for the graded control of flexor spasm or contracture. The splint is secured to the hand by means

of straps at the wrist and at metacarpophalangeal level, the front of the glove being split.

It is felt that the advantages of this extension splint are easy application, light weight, cosmetic effect and adaptability to the individual patient need.

—D. R. Street, Lt., AMSC.

DEFINITION OF THE GERIATRIC PATIENT.

Kurt Wolff, M.D. *Geriatrics*, 12:2 (February) 1957.

Increasing numbers of geriatric patients in mental hospitals have created great problems which require a new orientation by psychiatrists toward the prevention, treatment, and rehabilitation of mental illness in the geriatric patient. It is necessary to understand the patients' emotional needs which are influenced by the special problems of the aged. Among these problems are loss of self-sufficiency, rejection and neglect by society, diminished energy and ability to take the hurts of life, loss of faith in the future, fear of death, and unrealistic denial of sexual impotency. Mental ability shows progressive decline with advancing age, especially in speed, organization, recall of unfamiliar material and difficult logical procedures. Personality patterns of the aging are dependent on the life pattern of the individual. Those with emotional stability tend to retain it, while those with emotional problems tend to have them exaggerated under the stress of old age. The majority of geriatric patients also tend to show certain identical symptoms resulting from brain damage. It is important to differentiate between senility and the chronic brain syndromes associated with cerebral arteriosclerosis. Modern civilization forces upon the patient many social problems which contributed to his feeling of being a useless burden and cause him to become excessively preoccupied with bodily organs and functions.

Much research is needed to determine the etiology of geriatric afflictions and to prevent their occurrence. To cut overcrowding, mental hospitals should restrict care of geriatric patients to those in need of psychiatric treatment. Better nursing care in general hospitals and nursing homes, the use of out-patient departments, stress on prevention instead of treatment, and the creation of day centers for old people would help to decrease the burden on mental hospitals.

—Isabel C. Cella, Lt., AMSC.

A STUDY COMPARING THE EFFECTS OF BED REST AND PHYSICAL ACTIVITY ON RECOVERY FROM PULMONARY TUBERCULOSIS.

James G. Hirsch, Russell W. Schaedler, Cynthia H. Pierce and I. MacLean Smith. *The American Review of Tuberculosis and Pulmonary Diseases*, 75:3 (March) 1957.

A small group of adult female patients at Rockefeller Institute Hospital was made the subject of a controlled study to determine the effect on recovery from tuberculosis of bed rest as compared with physical activity. Results of this study indicated that the course of recovery in this group of patients was not appreciably different whether on bed rest or on physical activity. The authors suggest that the use of bed rest in tuberculosis therapy should be re-evaluated; that used uncritically it may actually result in harmful metabolic and physiologic effects on the patient. At the conclusion of the study summary charts are presented on each of twenty-one patients showing the course of recovery in relation to bed rest and physical activity. Also included are chest roentgenograms taken on admission and after approximately six months' hospitalization.

—Isabel C. Cella, Lt., AMSC.

THE CONTROL OF MOTOR FUNCTION IN THE TREATMENT OF CEREBRAL PALSY. Karel Bobath, M.D., D.P.M., and Berta Bobath, F.C.S.P. *Physiotherapy*, 43:10 (October) 1957.

The proper order of development of the cerebral palsied patient can be augmented through treatment techniques based on the inhibition of abnormal reflex activity and the facilitation of normal automatic movement patterns.

Individual reflex-inhibiting postures (postures which break up abnormal patterns) are devised from studying each patient's activity and positions. The child is held and moved within these reflex inhibiting postures until he learns to give up resistance to the pattern, hold the pattern unaided, to move into it without help, and to initiate movement himself. Postures are graded from easy to most difficult, utilizing the patient's highest potentialities.

Inhibition of abnormal reflex patterns and the facilitation of normal automatic movement are used together. Facilitation of normal automatic movement is accomplished by stimulating righting reflexes and equilibrium reactions through positioning. Examples of these positions are given. Righting reflexes and equilibrium reactions cannot be taught as exercises because the sensation of movement must be learned and not the movement.

—Janet Werner, 1st Lt., AMSC.

Letters to the Editor

To the Editor:

This is one therapist who would like to put in her recommendation that our national office seriously consider moving its headquarters to Chicago. From a number of discussions with fellow therapists in the Middle West, I feel that our national office could better serve the needs of all therapists by being more centrally located in Chicago. I feel that this move would eventually prove to be an economical one in saving transportation costs for our national officers, for Board members, and in such small, but costly matters as postage on letters, books and the like. It is also thought to be more economical to run an organization from a central location, rather than from the periphery of an area.

I am wondering just how many other therapists might agree on this matter. It would be interesting to hear from the members of AOTA concerning this.

Josephine C. Moore, O.T.R.

VENEZUELAN FELLOWSHIPS

The World Rehabilitation Fund will administer a program which will supplement Venezuela's medical techniques for rehabilitation through fellowships established by a grant from the Sinclair Oil Company. These fellowships will enable a selected group of Venezuelan doctors, nurses, occupational therapists, physical therapists, social workers and prosthetic technicians to obtain further training at the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, and other rehabilitation centers in the United States.

The World Rehabilitation Fund is a new voluntary agency formed in the United States to assist in the advancement of rehabilitation services internationally. Its president is Dr. Howard A. Rusk, its honorary chairmen include former United States Presidents Mr.

Herbert Hoover and Mr. Harry S. Truman, Mr. Bernard M. Baruch and Dr. Albert Schweitzer.

In addition to funds for fellowships, Sinclair Oil Company will present, through the International Society for the Welfare of Cripples, a library of books, periodicals and films for the Children's Orthopedic Hospital in Caracas.

In announcing the program, Mr. P. C. Spencer, president of the Sinclair Oil Company, cited President Eisenhower's recent State of the Union message in which he proposed an international "Science for Peace" program to attain a "good life for all." Mr. Spencer feels the contributions of Sinclair Oil Company are a step toward that goal.

Achievements . . .

(Continued from page 147)

riplegic patients was conducted to determine the achievements which they had acquired in a group of selected activities of daily living, during the rehabilitation process.

The subjects were classified in accordance with the neurological lesion levels of C-4, C-5, C-6 and C-7. All had been referred to occupational therapy during their hospitalization.

An analysis of the data compiled indicates the following conclusions which might be applicable to similar patients.

1. Independent performance was possible in some activities but no classification of patients in this study appeared able to perform all of the activities under investigation independently.

2. The greatest degree of accomplishment in these activities took place with the aid of assistive devices and their importance should not be overlooked.

3. Although assistive devices permitted a greater degree of accomplishment in the activities surveyed, their use entailed outside assistance.

4. The highest percentage of patients unable to perform the activities was present in the C-4 lesion level.

5. The greatest percentage of patients able to perform the activities was at the C-7 level of injury, with ability to perform independently ranking highest in this classification.

6. At each successive segmental descent of the lesion level, performance ability increased.

7. The eating activity, although the most complex necessitating considerable preparatory assistance, ranked first in the ability of the patient.

REFERENCE

1. Shear, Henry R., and Estin Comarr. "Eating Devices for the Paraplegic Patient," *Occupational Therapy and Rehabilitation*, 28:2, p. 154, 1949.

CLASSIFIED ADVERTISING

Classified advertising accepted for POSITIONS WANTED and POSITIONS AVAILABLE only. Minimum rate \$3.00 for 3 lines; each additional word ten cents. (Average 56 spaces per line). Copy deadline first of each month previous to publication.

POSITIONS AVAILABLE

OTR for staff position in speech center to work with cerebral palsied and other speech defective children. Opportunity to audit speech correction courses. Student training program. 40 hour week, Xmas and annual vacations. Apply Dr. Henry O. Marsh, Medical Director for Cerebral Palsy, Institute of Logopedics, 2400 Jardine Drive, Wichita 14, Kans.

Assistant to OT director, 82 bed intensive treatment (690 admissions 1957), short term psychiatric hospital, Summit, New Jersey, in a residential community 20 miles from New York City. Salary range \$4160-\$4472, 35 hour week Monday through Friday. Liberal additional benefits including Blue Cross hospitalization coverage, sick time, yearly bonus, 2 weeks vacation after 1 year, 3 weeks after 2 years of service. Pension program. Apply Mrs. Mildred M. Brunhouse, Fair Oaks, Summit, New Jersey.

Immediate placement for registered, qualified occupational therapist for supervisory position in rapidly expanding physical medicine and rehabilitation institute serving two hospitals, total 1,000 general medical and surgical beds, in largest centrally located industrial center in Illinois. Experience in supervisory position and in comprehensive rehabilitation center necessary. Salary \$4,800-\$5,400. Write: Administrator, Institute of Physical Medicine and Rehabilitation, 619 North Glen Oak Avenue, Peoria, Illinois.

Wanted: Occupational therapists, men and women, for a full approved, large psychiatric hospital in New England, midway between New York and Boston. Active in teaching and research. Large, new occupational therapy center, "the building of tomorrow." New and modern equipment, dynamic all-inclusive treatment program for patients. Large affiliating student group with excellent education program. Modern home, maintenance optional. Liberal retirement plan and illness policy. Paid vacations and holidays, automatic increments. Rotating services which offer professional growth.

Immediate appointments, Write: Harry Kromer, O.T.R., Norwich State Hospital, Norwich, Connecticut.

Wanted: An assistant director in occupational therapy department. Modern training and research institute provides opportunities for training occupational therapy students, research, and professional advancement. Liberal vacation, sick leave, thirteen paid holidays, and yearly salary increments. Professional requirements: registered occupational therapist, four years experience, including two years of supervision. Write to: Mr. William Maguire, Personnel Director, Eastern Pennsylvania Psychiatric Institute, Henry Ave. & Abbottsford Road, Philadelphia 29, Pa.

Indiana needs O.T.R.'s. You'll like our excellent positions and there's one in the area of your choice. Don't delay. Marian Kraker, Placement Chairman, IOTA, Sunnyside Sanatorium, Indianapolis 26, Indiana, will gladly furnish list of vacancies.

Occupational therapist, geriatric setting, modern home for the aged, two spacious air-conditioned rooms with thermopane windows have housed a successful program, a six room house adjoining the premises is available at a fair rental, salary is open. Communicate with Martin S. Freeman, Executive Director, Hebrew Home for Aged, 615 Tower Ave., Hartford, Conn.

Assistant director, modern tuberculosis hospital with affiliation program. Close liaison with active state rehabilitation program. Patient rehabilitation conferences with heads of professional services. Five-day, 40-hour week, paid vacations, 7 holidays, sick leave, social security. Excellent opportunity for progressive administrator. Send resume to Mrs. May Yokoyama, Director, Occupational Therapy, Emily P. Bissell Hospital, 3000 Newport Gap Pike, Wilmington 8, Delaware.

OTR for crippled children's school, immediate. New, well-equipped, air-conditioned department. Good salary, advancement, holidays, vacation, sick leave, insurance. Write Joe D. Ellis, Executive Director, Hughen School for Crippled Children, 3620 28th Street, Port Arthur, Texas.

Occupational therapist, registered, staff level; interested in working with amputees, polios, paraplegics, cerebral palsy and related diagnoses. Rehabilitation hospital with present bed capacity of 65 beds. Planning now underway for expansion of in-patient and out-patient facilities. Progressive personnel policies. Salary commensurate with experience and training. Apply Administrator, Eastern N.Y. Orthopaedic Hospital-School, Inc., 124 Rosa Road, Schenectady 8, New York.

Wanted: 2 occupational therapists, registered or eligible for registration, at Utah State Hospital. This is an expanding rehabilitation department in a progressive treatment-oriented, psychiatric hospital located in a university city. Good working conditions, liberal time-off and sick leave policy. Salary from \$3720 to \$4800. Research and student potentials. Write for application to: Alice Hussey Peden, O.T.R., Director of Rehabilitation, Utah State Hospital, Provo, Utah.

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How to Apply: For detailed information and application forms write to Personnel Officer, Dept. of Public Health, Provincial Health Bldg., Regina, Sask. Applicants should refer to file c/c 4704.

Supervising occupational therapist for outpatient rehabilitation center. Caseload primarily chronically ill or pre-vocational. Salary range \$4600-\$6300. 35 hour week. Position available in September. Write Gerald E. Cubelli, Executive Director, Mobility, 427 Main Street, New Rochelle, New York.

Excellent opportunities for occupational therapists to use knowledge and abilities in developing a progressive, dynamic program. Located in suburban Louisville, Kentucky, which offers educational and cultural advantages. Salary commensurate with experience, 40 hour week, paid vacation and sick leave, 13 holidays per year, opportunity for advancement to supervisory positions. Contact Miss Margaret Biener, Director of O.T., Central State Hospital, Lakeland, Kentucky.

Occupational therapist, registered, for 250 bed convalescent hospital. Experienced in treatment of physical disabilities. U.S. citizen, under age 50. Salary range \$415-\$519. Vacation and holidays. Write Medical Director, Tulare-Kings Counties Hospital, Springville, California.

Immediate opening for occupational therapist, with degree. Special school for physically handicapped. Cerebral palsy experience desirable. Apply, Mrs. Andrew Witengier, Coordinator of Medical Services, Forrest Park School, 1600 Silver Star Road, Orlando, Florida.

OT for director's position wanted immediately for work in expanding rehab. center. Complete physical and vocational services are available to the patient. Starting salary commensurate with experience. 20 days vacation, 12 days sick leave. Student training center for University of Pittsburgh. Write Mrs. Mona Durgin, O.T.R., Harmarville Rehabilitation Center, Pittsburgh 38, Penn.

Wanted: occupational therapist for 250 bed general medical and surgical hospital with psychiatric service. Pleasant surroundings, congenial staff, interesting work. Salary open. Write Doctor Bernard Watson, Superintendent, Clifton Springs Sanitarium and Clinic, Clifton Springs, New York.

Occupational therapist for Cerebral Palsy Treatment Center. Fully equipped. Good working conditions. Excellent salary. Scholarship funds available for additional training. Write Herman L. Rudolph, M.D., 400 North Fifth Street, Reading, Pennsylvania.

Registered occupational therapist to develop and maintain program for new 100 bed psychiatric unit in large midwest hospital. Salary open. A wonderful opportunity for the right person. Address Box 25, American Journal of Occupational Therapy, 3514 N. Oakland Ave., Milwaukee, Wis.

Occupational therapist (woman) for well-equipped rehabilitation service under direction of a physiatrist in a new facility offering well-rounded program for in-patients and outpatients. Department also provides extensive program for psychiatric section of hospital. Apply Director of Rehabilitation Service, Deaconess Hospital, 6150 Oakland Ave., St. Louis 10, Missouri.

Wanted—Therapist for teaching position. Teaching responsibilities and salary appropriate to individual qualifications. Apply: Occupational Therapy School, College of Puget Sound, Tacoma 6, Washington.

Vacancies will be occurring for general duty occupational therapists in the University Hospital in Saskatoon, Saskatchewan, Canada. Departments are progressive and offer additional training under medical supervision in all fields in this 550 bed, teaching hospital. Salary range \$265 to \$325 per month. Address inquiries to Personnel Office.

Wanted: occupational therapist in June, 1958, for 110 bed Nebr. Orthopedic Hospital. Patients' ages under 21, salary right. Write Dr. F. A. Alcorn, Supt., Lincoln 2, Nebr.

Occupational therapist in private psychiatric hospital (O.T.R.). Work includes recreation and entertainment as well as the occupational therapy program for both women and men. Maintenance is provided. Salary open. Apply to Clifford D. Moore, M.D., Medical Director, Stamford Hall, Stamford, Connecticut.

Qualified occupational therapist for out-patient cerebral palsy treatment center. Liberal salary. Two month vacation, sick leave. Liberal personnel policy. Contact Robert Schlitt, Director, Peninsula Cerebral Palsy Training Center, 901-24th Street, Newport News, Virginia.

Immediate opening for registered occupational therapist in the 60 bed psychiatric unit of the Cincinnati General Hospital; OT program is already well developed and closely integrated with other treatment programs; opportunity for education and professional growth in a large, dynamic resident training center; faculty appointment in Medical College; salary range \$4176 to \$5090; 2 to 4 weeks vacation. For further information contact Dr. Charles Hoffing, Department of Psychiatry, Cincinnati General Hospital, Cincinnati, Ohio.

Immediate opening for staff therapist, county TB sanatorium, attractive, well-equipped department. Salary \$3927-5103, paid vacations, holidays, social security and retirement. Full maintenance available. Contact George Swalbach, M.D., Superintendent, Iola Sanatorium, Rochester 20, New York.

Registered occupational therapists for new modern admissions building in psychiatric hospital 12 miles out of Boston. Salary range \$3,497-\$4,511. For further information contact Miss Helen Storr, OTR, Head Occupational Therapist, Metropolitan State Hospital, Waltham 54, Mass.

Wanted: Assistant director of occupational therapy interested in extensive occupational-industrial therapy program for 3000 bed A.P.A. approved psychiatric teaching hospital. Salary \$5500-\$7050.00, 40 hour week, 15 days vacation and 13 holidays. Civil service and retirement benefits. Write: Miss Olive Bostrom, O.T.R., Director of Occupational Therapy, Warren State Hospital, Box 240, Warren, Pennsylvania.

Chief occupational therapist: to conduct a program of activities for patient rehabilitation in surgical, general medicine, orthopedic and psychiatric clinics. Ability to originate plan and organize work projects; supervising staff therapists and participation in teaching program. Employee benefits of retirement plan, holiday, vacation and sick time. Forty hour week. Apply: Director of Personnel Relations, The Johns Hopkins Hospital, Baltimore 5, Maryland.

Coordinator of adjunctive therapies, occupational therapist I, II, III: Excellent opportunity in management and coordination of established therapeutic programs in a large mental hospital. State merit system, a favorable environment for accomplishment and advancement. Write Gay D. Barton, Personnel Officer, State Hospital No. 3, Nevada, Missouri.

Occupational therapist, immediate opening, salary \$4300 to \$5512 yearly. Opportunity to work in intensive treatment area with newly admitted patients. 3000 bed state hospital. New York state civil service position. 40 hours, 5 day week, 12 holidays, 20 working days vacation, sick leave, retirement plan and health insurance plan. Suburban area, 30 miles south of Buffalo, N. Y. Write to: Victor A. Cohen, Supervisor of OT, Gowanda State Hospital, Helmuth, New York.

Openings for 2 registered occupational therapists in 500 bed medical center. Expanding programs in rehabilitation, acute, chronic disease and psychiatric care. 1 supervisory position, 1 staff position available. New air conditioned quarters. For information write: Franz U. Steinberg, M.D., Medical Director, Rehabilitation Division, Jewish Hospital, 216 South Kingshighway, St. Louis 10, Mo.

Opening for chief and one staff occupational therapist for an out-patient crippled children and adult physical disability program in a well equipped modern building. Applicant for position of chief therapist must have at least two years experience in one of these disability fields. Clinical training program. Two weeks vacation plus all school holidays. Salary range from \$3900 to \$6000. Starting rate based on qualifications. Apply to Robert F. Scott, Director, Crippled Children's Society of Fort Worth, Inc., 4700 S. Riverside Drive, Fort Worth 5, Texas.

Registered occupational therapist, full time employment, available now in general 500-bed hospital. Part time to be spent in physical medicine department under direction of a physiatrist and part time in psychiatric service under direction of psychiatrist. New department—challenging opportunity—salary open—would meet any reasonable salary—5 day week. Write or call Harriette Oeffiger, Personnel Director, Charles S. Wilson Memorial Hospital, Johnson City, New York.

Challenging positions available for OTR's in New Jersey's largest state mental hospital with opportunity available for professional growth. Progressive, well equipped department under direction of Mrs. Lucille Boss, O.T.R. Staff conferences, excellent guidance. Staff salary \$4200-\$5100, Sr. \$4360-\$5460. Full maintenance approximately \$400 annually. Apply Personnel Department, New Jersey State Hospital, Greystone Park, N. J., (approximately 30 miles west of New York City—near Morristown, N.J.)

Long Island Hospital, the chronic division of the Boston Hospital Department has two positions open for occupational therapists to work with two rehabilitation programs: (1) Physical disabilities. (2) Alcoholic research. These programs are supervised by doctors who teach at the Boston School of Occupational Therapy. Yale University School of Alcoholic Studies recognizes the alcoholic program. 40 hour week—\$67.75 to \$75.25 per week—vacation—sick benefits—maintenance if desired. Contact Jane Welch, Supervisor, Occupational Therapy Department, Long Island Hospital, Boston 69, Massachusetts.

Immediate opening for O.T.R. in a progressive teaching hospital for chest diseases located in university medical center. Comprehensive OT program within interdisciplinary rehabilitation department. Used as clinical practice center by 8 occupational therapy schools. Civil service, 3 weeks vacation, sick leave, retirement plan. Will consider recent graduate. Apply to: Mrs. Nancy Prendergast, O.T.R., Supervisor, Occupational Therapy, Ohio Tuberculosis Hospital, O.S.U. Medical Center, Columbus 10, Ohio.

Immediate opening for qualified therapist to take charge of dynamic team-approach program with adults. Opportunity to try new ideas in functional, A.D.L., pre-vocational, vocational, home-making areas, with variety of diagnoses. Medical supervision provided through affiliation with Yale Medical School and Hospitals. Salary commensurate with experience. Liberal personnel benefits. For information write to: Mrs. Thelma Parker, Co-ordinator; New Haven Area Rehabilitation Center, Inc.; 378 Congress Avenue, New Haven, Connecticut.

Director occupational therapy in progressive psychiatric hospital. Salary \$5529-\$7055, liberal fringe benefits. Write Activity Program Coordinator, Allentown State Hospital, Allentown, Pennsylvania.

O.T.R. Well established center within university offers challenging therapy and research work with severely handicapped poliomyelitis patients. \$3,600-\$4,200 depending on background. Health and life insurance, retirement plan, educational and other benefits. Small unit with opportunity to exhibit initiative and imagination. Write William D. Loeser, M.D., Med. Dir., Respiratory and Rehabilitation Center, 2211 Main Street, Buffalo 14, New York.

Immediate openings for 2 registered therapists in outpatient rehabilitation center. One supervisor of department and one staff therapist needed. For further information, write Mrs. Margaret Blank, OTR, Rehabilitation Center of Summit County, Inc., 326 Locust Street, Akron 2, Ohio.

Occupational therapist for hospital-school serving educable, physically handicapped children age 5-21. Attractive salary, paid vacation, sick benefits. Write or call Miss Virginia Reeves, OTR., Illinois Children's Hospital-School, 2551 North Clark Street, Chicago 14, Illinois. Phone: Diversey 8-4600.

Openings for two occupational therapists in a 3300 bed psychiatric hospital. Salary range \$3660-\$5928. Apply at St. Louis State Hospital, 5400 Arsenal, St. Louis, Mo.

Occupational therapist—Grasslands Hospital. Active, expanding program in psychiatric institute. Must have certificate in occupational therapy. Liberal personnel policies. Starting salary, \$4,320 with annual increments. Apply Personnel Supervisor, Grasslands Hospital, Valhalla, Westchester County, New York. LYric 2-8500, Ext. 61.

One of the leading psychiatric institutes and large teaching centers for all disciplines is accepting applications for staff therapists to work in progressive occupational therapy department. Excellent opportunity to gain experience in ideal psychiatric setting. H. Dwyer Dundon, O.T.R., Nebraska Psychiatric Institute, 602 South 44th Avenue, Omaha 5, Nebraska.

Occupational therapist to take full charge of an active department in a 350 bed general teaching hospital and to be in charge of occupational therapy students from an affiliated school. 44 hour week, one month's vacation plus other liberal personnel benefits. Salary \$4,600 per year. Write Mr. Edwin L. Taylor, Director, The Graduate Hospital, Philadelphia 46, Pa.

Immediate opening for registered occupational therapist in children's unit of New Haven Area Rehabilitation Center, Inc. Well-equipped, rapidly expanding treatment unit. Congenial staff with team approach. Primarily cerebral palsied children plus limited different diagnoses. Salary open, liberal personnel benefits. Please write to: Mrs. Thelma F. Parker, Co-ordinator; 378 Congress Avenue, New Haven, Connecticut.

Needed: Occupational therapist, registered, to head established, well equipped department in 500 bed general hospital, both in and out patients; stressing functional therapy, good salary, and personnel policy. Contact: Melvin G. Carson II, R.P.T., St. Joseph Infirmary, Preston and Eastern Parkway, Louisville, Kentucky.

Registered occupational therapists for California rehabilitation programs in mental hospitals, Veterans' Home, and public health. Starting salaries \$376, \$436, and \$530 depending on experience. Promotional opportunities in mental hospitals. Attractive employee benefits. Write Medical Personnel Services, State Personnel Board, 801 Capitol Avenue, Sacramento, California.

We're looking for a staff OT for our expanding program in a progressive training center for mentally retarded and epileptic. CP experience preferred. Scope of OT includes treatment of physical disabilities and emotional disturbances, as well as help in initial adjustment to institution and ADL. Two new clinics; staff of 8; flexible, medically supervised program. Salary \$3900; meals, laundry and medical care furnished. University of Florida and Medical School in same town; beaches within a 100 mile radius. Write Miss E. Joann Stepp, OTR, Acting Chief Occupational Therapist, Sunland Training Center, Gainesville, Florida.

Staff OTR. Expanding program in team approach to total rehabilitation of psychiatric patients. Complete maintenance \$40.00, two weeks vacation, liberal sick and retirement benefits. 40 hour week, \$4100-\$5000. Write Mr. Miller, O.T.R., Oregon State Hospital, Salem, Oregon.

Occupational therapist for expanding department. Beginning salary \$4000 for inexperienced therapist. Good personnel policies, paid vacation, sick leave, Blue Cross-Blue Shield, annual salary increment, 37½ hour week. Crossroads is in a beautiful new building, well equipped and nationally recognized as a leader in the field of rehabilitation. This is a real opportunity. Write Roy E. Patton, Executive Director, Crossroads Rehabilitation Center, 3242 Sutherland Ave., Indianapolis, Indiana, or call WALnut 6-2482.

Immediate opening for qualified registered occupational therapist, 400 bed tuberculosis sanitarium. Beginning salary \$337 monthly with periodic increases; 40 hour week; 2 weeks vacation; 11 paid holidays. Student training program. Hospital in medical center, easily accessible. Apply: Dr. Karl H. Pfuetze, Medical Director, 1919 West Taylor Street, Chicago 12, Illinois.

OT supervisor, salary \$5652-\$6732, to head newly authorized department at institution for mentally retarded. Will have one OTR and several handicraft workers to supervise. Must have leadership ability and some supervisory experience. Contact Superintendent, Rainier School, Buckley, Wash.

Position open, Saint Albans Psychiatric Hospital, Radford, Virginia. Recreation and occupational therapy director for 120 bed private psychiatric hospital located in southwest Virginia. Prefer young woman who has completed training—interested in a challenging situation. Wonderful opportunity for growth. Address inquiries: Don Phillips, Administrator, Box 1172, Radford, Virginia.

Excellent opportunity for registered occupational therapist in rapidly growing out-patient treatment center. Good personnel benefits and salary. New and well-equipped department. Write Joseph Collins, Director, Curative Workshop of Green Bay, 342 South Webster, Green Bay, Wisconsin.

Position available for O.T.R. in August. Director of Patient Services in 80 bed tuberculosis hospital. Salary dependent upon experience. Maintenance if desired, at nominal fee. Apply to Dr. George H. Phillips, Medical Director, Jackson County Sanatorium, Jackson, Michigan.

Occupational therapists—There are 3 new positions available in Maryland's expanding state chronic disease program. Opportunities are available for one senior therapist (starting salary \$4,021.00), two staff therapists (starting salary \$3,832.00). The positions have usual benefits: 40 hour week, annual increments, 13 paid holidays, sick leave, vacation, state retirement plan and social security, state civil service, Blue Cross & Blue Shield available, free uniform laundry service. Apply: Dr. Florence I. Mahoney, Director of Phy. Med. & Rehab., or Mrs. J. Dana, O.T.R., Montebello State Hospital, Baltimore 18, Maryland.

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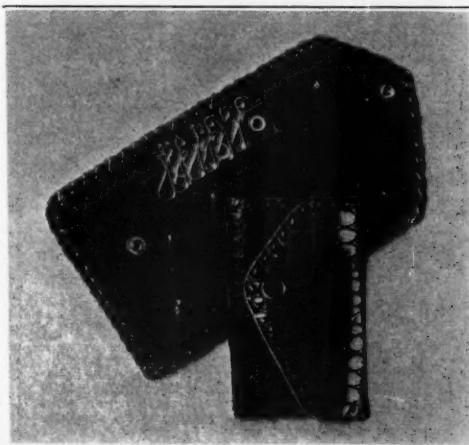
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